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University of Buffalo Studies

VOLUME I

1919-1920

BUFFALO

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University of Buffalo Studies

VOLUME I

1919-1920

BUFFALO

1920

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PREFACE

In view of present social and political conditions, pointing to the beginning of the growth of a closer relationship between the old world and the new, it becomes more imperative than ever that mutual understanding and knowledge be the basis of the new relationship. The history of Russian education, from an interpretative point of view, has scarcely been begun, even in Russia, though the materials for it have been collected. It is intended that this first survey shall be followed by other investigations giving, for the various periods, a more detailed account than has been possible in this broader analysis.

I am glad to express my appreciation for the aid and encouragement which have been given me. Professors Monroe, Kilpatrick and Kandel of Teachers' College have been particularly kind, while to Professor Prince of the Russian Department of Columbia University I owe my first introduction, some five years ago, to the language and the affairs of Russia.

I am also under obligation to my many Russian friends who, however much they have differed in political and social creeds have, one and all, exemplified a spirit of service in giving many hours of their time to a foreigner who had no other claim than a sincere and friendly interest in their land and language.

D. B. L.

July 29, 1919.

CHAPTER I

Introduction

Explanation of Thesis.

This essay will endeavor to trace the following four movements in the history of Russia, and to show their mutual relationships: 1, the growth of democracies in the period from the 9th to the 13th centuries; 2, the evolution of an autocracy, dating from the 13th century; 3, the creation and imposition by this autocracy of a system of education directed to class and politician ends; 4, the resultant struggle against this autocracy and its system of education.

Finally, an examination will be made of the program of the Bolshevik regime as a type of education radically different, in principle and method, from that which it has, for the time being, supplanted, and which claims to be of and for that people whom the previous system neglected.

In other words, an attempt will be made to correlate the social, economic, political and educational evolutions of Russia. It seems, to the writer, that it is easy to trace, in Russia, a clear connection between these different factors of history. Political and economic disaster or dissatisfaction have led to social and educational advancement, newly established security at home and abroad, after a period of disorder, have often led to new social and educational restrictions. The influence of the West is predominant throughout—now leading to reform, again to insular attempts to be self-sufficient; but it cannot be too much insisted that Russian history is a part of that larger field of history represented by Western civilization in general.

The history of education in Russia affords an example of this influence of the West. Under Peter, and even to some extent under some of his immediate predecessors, Russia was literally forced to share in the culture of the West and to think some of her ideas; under some of the later Tsars it was forbidden even to travel abroad. But in every case, under the Romanov dynasty, the principles of Russian education have been formed by and for the sake of the ruling class and the government.

Education has always been considered in Russia, by both the autocracy and its opponents, as an eminently serious and important matter. Russian literature, all but the very lightest, has concerned itself with the question. Education and schools are viewed, and have always been viewed, in intimate connection with life, but the kinds of life for which the reformers and the government wished the schools to prepare were, of necessity, totally different. It was the inability of the government either to stem the tide of the revolutionary movement, or to bring about, under its own direction, the necessary and widely demanded educational and social reforms which led to the present state of affairs. But it must be kept constantly in mind that the social revolution, of which the Soviet government is the culmination, began in a very real sense with Peter the Great. The present is only the historical outcome of a long and intricate struggle between the Russian people and their government which, ready more than once to fall, needed but the final and too disintegrating conditions of the World War to bring it to an end. But the beginning was long ago.

In addition to establishing the main points of the first paragraph, it is hoped that this essay may help to a better understanding of Russia and things Russian. The rest of Europe and, in particular, the people of the United States have not known or understood much of Russia and her history in the past; if we had, there might have been less surprise at the Revolution and more preparation for it. For better or for worse, we of America are, since the war, more closely knit to Europe and its problems, and Russia is a large part of Europe, both from the point of view of resources and size, as well as of population. Her problems are our problems, even if not so acute; and her solutions, whether failures or successes, should be followed closely and accurately, and as they really are, not as interested propaganda too often misrepresents them. Autocratic Russia, like Germany, had a highly centralized national system of education, with very definite national ideals, and a highly specialized conception of mass and class,—and it has all come to nothing. We, of the United States, are also a nation; we, too, have problems not unlike Russia's, and it is not stretching possibilities to expect that we can perhaps gain in educational outlook by understanding conditions and solutions in both the old and the new Russia. In any case, we can help her. American educational ideas and ideals are well known in Russia, many of them most favorably; American text-books are highly thought of; but we cannot offer adequate or substantial advice without an intimate knowledge of her past and present conditions.

With this in mind, there have been included, together with the Russian references, authorities in translation. Many authoritative presentations of Russian thought exist in Western European languages, though for a thorough investigation, at least at present, acquaintance with the Russian language is necessary. This fact comes out clearly in the case of Russian literature which, to us of the West means, only too often, merely the names and the novels of some few writers, representing one or more aspects of the spirit of the country, but no more representative of the whole than, say, Dickens and Wells would be with us. Educated Russians know the United States better than we know Russia,—and largely because they have taken the trouble to learn English.

Relation of Education to National Life and Character.

What should be the relation of education to national life and character? Several answers can and have been given to this question; Russia, under the old government, answered by attempting to mobilize and organize national life and character in terms of ideals originating in, and in favor of a ruling class. But since these ideals were not at all in accord with the real nature of the people or their ideals, they had to be constantly bolstered up by force of one kind or another. We shall therefore find force as an ever present factor in Russian education. We shall also find that great emphasis has been placed on the so-called "church subjects" and much time devoted to them, puarticularly in the elementary schools, beyond which the great mass of the people did not progress.

As a general background for the criticism and evaluation of Russian education, as it was under the autocracy, the following democratic principles of the relation of education to life and character are assumed as valid. First, education is a process whereby the individuals of each generation come to understand and to partake of the traditions and the culture of the group and its history, not merely for the sake of understanding these traditions or in order to become subject to them under the domination of a ruling class, but for the sake of thereby becoming unified with the society in which they, as individuals, live and in which they are to be active. Secondly, this activity of the individual should be in terms of the life and activity of the group as a whole, so that the democratically educated individual, in a very real sense, acts for the welfare of the group and finds therein his own. This carries with it several corollaries, conspicuously neglected by the older Russian education. In the first place it means control of the individual by his own ideas

and purposes, socially derived, to be sure, but not by coercion from above; secondly, it means free intercourse of each and every section of the whole group; thirdly, it means progressive adjustment and re-adjustment in terms of both the experiences of the individual and the group; fourthly, it means adaptation of education to local needs and posssibilities, in place of a stereotyped abstract idea of "education as such", used to transform all participants to a given type, with the exception of the chosen few who have devised the conception. Finally, it means the same education, so far as the individual can profit by it, for each and all, not a stratified system of mutually exclusive schools for different social and economic groups.

With the above as a background the course of development of education in Russia will be followed from its origins, through the period of the control of the Autocracy, up to the present regime, together with the accompanying social, political and economic factors of each period, in so far as they seem to interact with the educational situation.

CHAPTER II.

The Period Before Peter

The Rise and Development of the Early Democracies.

"The history of Russian education in its organized form can scarcely be said to date back to a period anterior to the time of Peter the Great." (Darlington, Chap. I.) The only schools in existence were those attached to monasteries, and were both few in number and very degenerate. (Demkov). It is necessary, however, before entering upon an examination of the efforts of Peter to supply a system of schools to his country, to examine the nature of the civilization and culture which prevailed before his time. This will involve a brief survey of the history of the period of Russian history extending from the origins to the end of the 17th century,—a period of some 900 years.

"The history of Russia affords special facilities for the study of sociology. They originate, firstly, in the comparative simplicity of the processes dominant throughout its course—a simplicity which enables us to examine minutely, not only the workings of the historical forces in general, but also the operation and relative potency of those special factors by which the comparatively non-complex composition of Russian social life has been determined; and secondly, in the peculiar circumstances which have influenced Russian development from the very beginning—circumstances which, while imparting to the nation a distinctive character and genius, have communicated also to the national life a special rate of evolutionary progress." (Kluchevsky, vol. I, p. 1.)

In the course of those migrations in Europe which, at different times resulted in the occupation of Greece, Rome and the center and West of Europe, one of the later was that of the "Slavs." They were known, apparently, to the Greek and Roman writers as "Scythians," and before separation into groups dwelt in the forests and plains beyond and north of the Carpathian mountains. This Carpathian period lasted from approximately the 2nd to the 7th centuries, when the pressure of the Avars forced the Slavs to migrate still further. (Kovalevsky, 101, chap. I.) In their migrations it was the Carpathian mountains which separated the group

as a whole into the Western and Eastern divisions, known to us now, respectively, as the Bohemian-Serb group and the Russians. These latter occupied, at first, but a very small part of modern Russia in Europe, being barred from the North and the Baltic by Finns and Lithuanians, and from the South and the Black Sea by Turkish and Finnish tribes. Thus the middle portion of modern Russia was their first habitat. This brings us to approximately 860 A. D., the time of the English King Alfred, and shows the comparative lateness of development and organization. (Kluchevsky, vol. I, chap. V.; Kovalevsky, 101, chap. I. For maps, see Beazley, and Milioukov, 103.)

From the time of this early settlement to the coming of the Tatars, that is, from the 9th to the 13th centuries, the history of Russia is a history of democratic and republican ideas and institutions, to a very marked degree. These ideas and institutions they brought with them. Procopius and Maurikius, annalists of the 6th and 7th centuries, at Byzantium, comment on this. "From the remotest period," says Procopius, "the Slavs were known to live in democracies; they discussed their wants in popular assemblies or folkmotes." (Ex Gothica seu Bellum Gothicum, chap. XIV, quoted by Kovalevsky, 101, p. 6.) "The Slavs like liberty," writes the Emperor Maurikius, "they cannot bear unlimited rulers, and are not easily brought to submission." (Stategicum, chap. 11, quoted by Kovalevsky, 101, p. 6.) "The Slavs," says the Emperor Leo, "are a free people, strongly opposed to any subjection." (Tactica seu de Militari, chap. XVIII, quoted by Kovalevsky, 101, p. 6.)

Among the privileges of the folkmotes was that of choosing a ruler, and it was in connection with this right that a beginning was made in the organization of the land and the people. In the Chronicle of Nestor (Beazley, pp. 4, 5), we read, " . . . and they set themselves to govern themselves, and there was no more justice among them: families disputed with families, and there were discords, and they made war between themselves. Then they said, Let us seek for a Prince to rule over us and judge us according to right. And they went over the sea of the Varangians and went among the Rus, . . . and said to the Rus, Our land is rich and great, but there is no order among us; come then, and rule and govern us. And three brothers joined together, with their families and brought them to Rus. . . . " This is perhaps the first mention of the word we know as "Russia," which is said to be a Finnish term for the Norsemen, describing them as "rowers." This domination lasted only two years when rebellion broke out, the people of the

town of Novgorod saying, "We are but slaves, and suffer evil from Rurik and his nobles." But the revolt was broken, and, "At the end of two years, died Sineus and Truvor, and Rurik made himself master of all the country, . . . He established himself there (Novgorod), as Prince, and divided among his companions the lands and the towns . . ." (Beazley, ibid.)

Thus the first nucleus of consolidation in Russia is in the North, —Novgorod (New Town). But the Rus, under their "Viking" leaders, expanded to the South and began to place under the sway of the Princes of Novgorod the rest of the towns of the land. Pioneers, also of Norse stock, had preceded the Princes of Novgorod, and had even attacked Tsargrad, i. e. Constantinople, about 865. Here again, the source is Nestor. (Beazley). The Patriarch Photius of the Eastern Empire, is also witness to this. (Kluchevsky, vol. I, pp. 70-72).

Kiev was the most important of the towns thus brought under sway of the Norse rulers, and became, in turn, the center for fresh invasions and conquests, as well as the new capital of the Norse-Slavic culture and the chief market for the trade with the East, which was always associated with the conquests of the advancing Princes. There was, as yet, no trade with the Poles or Hungarians, and that with the North homeland was comparatively insignificant.

With the rise of Kiev, the second of the early famous towns, a much broader political development began. As the Princes of this town extended their domains, they also established, as rulers of the conquered territory, relatives or paid retainers, but under such terms that, apart from the paying of tribute, they were as complete in their sovereignty as the Grand Prince of Kiev. There was really a confederation of "city states," with a President at Kiev. During the winter, from November to April, the Grand Prince made a tour of his domains to collect tribute, seldom, at this period, in money. In the Spring preparations were made for the Summer trade and, in June, a great fleet sailed and floated down the Dnieper to the Black Sea and thence to the Byzantine ports. From thence, by the Sea of Azov, the Don and the Volga the trade was carried to the markets of Eastern Islam. The retinue of the Grand Prince was composed of the nobles who were at once the ruling and the merchant class and were accompanied by some private traders. But the bulk of the commerce was, so to speak, official. Treaties were made and broken with the Eastern Empire, involving tax agreements, fines, modus operandi of trading, and so on. (Beazley, pp. 10-17.) In all this two things are of import-

ance for the future development of Russia; first, intercourse with Byzantium led ultimately to the conversion of the Russians by the Eastern Church; secondly, Roman legal conceptions crept into the country, among which the conception of absolutism in ruling, when reinforced by the experiences of the Tatar invasion, led to a complete revolution of the system of government. (Kluchevsky, vol. I, chaps. VI, VII, XII.)

The regent Olga, of Kiev, marks the beginning of state interest in Christianity. In 955 she went on a state visit to Constantinople and was baptized by Constantine VII and the Patriarch of the Church, assuming the new name of Helene. (Chronicle, in Beazley, p. 20.) But it is not until the reign of her grandson, St. Vladimir, that Christianity is officially adopted.

At first a valiant restorer of the old heathendom and defender of the old gods, he came, in later life, both to feel a certain religious unrest among his people and also to become acquainted with other religions. According to the Chronicle, he and his council examined in turn the Jewish, the Mohammedan and the various forms of the Christian faith, coming finally to the conclusion that, of them all, the one most fitted to the nature of the Rus, as well as the most beautiful and the most appealing, and also the one favored by his grandmother Olga, was the Eastern form of Christianity. It is noteworthy that the form of the Eastern service appealed to him and his followers,—"For there is no such spectacle on earth, nor one of such beauty. We cannot describe it: we only know that there God dwells in the midst of men." (Beazley, pp. 21-24.) Vladimir married the sister of Basil II and baptized his people by force, in droves in the river, throwing the old gods over a bluff into the stream.

Thus was a momentous decision made and carried out, and its basic cause was trade and the location of trade routes. It is more important than it seems at first sight, for choice of the Eastern Church meant refusal of the claims of the Church of Rome, meant cultural separation from the civilization of the West and from the Romanized Polish Slavs, with momentous consequences in wars and intrigues. It also meant, on the other hand, alliance with a decaying civilization while Russia was herself too young to judge its faults. It is this early union with the East which is the source, in later days, of prejudice against the West and its culture, making the task of Peter and his successors more difficult, and giving rise to political and social problems.

Under Vladimir, early Russia attained its highest power, its greatest expansion and least defective organization, though it did not become a thoroughly unified state. Under his son Yaroslav, the reputed author of the "Russkaya Pravda" or Code of Russian Law, many and brilliant alliances were made with the reigning families of other lands,—Poland, Norway, France and Hungary. Under his rule Kiev is said to have rivalled Constantinople in grandeur, but to maintain it heavy taxes, paid by the peasantry, were necessary. The peasants, to be sure, had not yet lost their ancient heritage of freedom and democracy, but the process was beginning. (Kluchevsky, vol. I, chaps. VI, IX, X.)

The death of Yaroslav showed clearly that only a strong hand had held the Federation together. The next two hundred years are years of internal discord and war, and the hope that Kiev with its Duma might have developed into a true well founded democracy is lost and, to the coming of the Tatars, there is no further supremacy there. Novgorod takes up the leadership.

Russian official historians like to point to the fact of the autocracy as proof that it was inherent in the nature of the Russian people. Kiev, at its height, is disproof of this, Novgorod is even more so. Where the Prince of the former was constrained to take advice before any important action, and to admit the elected City Wardens to his council, the latter goes still further, and may be termed, in no uncertain sense of the words, "the Republic of Novgorod."

From early times the spirit of Novgorod had been famous. When, in 972, Kiev had offered to send an ordinary official to rule the town, in place of the son or nearest relative of the Grand Prince, the city had retorted,—"We know how to find another Prince." Again, in 1102, when the city elected a Prince for itself, it sent a messenger to Kiev, saying, 'Novgorod hath sent us to say unto thee, we desire neither thee nor thy son. Send thy son only if he have two heads. Already we have Mstislav . . . reared by us to rule Novgorod." (Chronicle, Beazley, p. 29.) As Kiev declined, Novgorod became more and more democratic. The sovereignty was treated as purely elective, often followed by recall or deposition. But Novgorod was only Novgorod; there was no national spirit or leadership. The relations of the early free towns of Russia would seem to be not dissimilar to those of the Greek City States,—they never realized that in union alone could they be strong, and consequently wasted in internal wars the strength that might have defeated the Tatar when he came, or thrown off the yoke sooner. But

there was as yet no national feeling, since there was, as yet, no real nation.

Lord Novgorod the Great, "Gospodin Veliki Novgorod," is the best example of the city state of the Russian Middle Ages. Kiev and Moscow, in their respective periods, were in some respects of more importance, but no other town had the same self-sufficiency, activity and success. It alone survived, almost unharmed, the invasion of the Tatars, and succumbed only with the rise of Moscow. At its height it is said to have had a population of over 100,000, with 300,000 more subjects without the walls. The ruling Prince was elected, the Church was strong, but all in all, when not divided by party factions, the real power was the Veche, or General Assembly of the citizens. Later, we hear of a "Posadnik," or Governor, in place of the Prince, and elected, like him, by the Veche. (Chronicle, Beazley, pp. 40-42.) Though the Church was powerful, its bishops, too, were elected, and in the Veche was vested the decision for war and peace, for banishment and punishment.

But over and over again certain other characteristics, peculiarly Slavic, appear, such as the principle of the "necessity of unanimity." Many a peaceful solution is lost because a minority oppose it,—and in the Novgorod of the 12th and 13th centuries, to be in a minority meant, often, to be drowned, killed by the sword or expelled. Again lack of political experience, lack of utilitarian ideas,—a characteristic Slavic trait, and the failure to make common cause against the enemy led to dissolution and downfall. Novgorod fell before Moscow in 1471, but the rise to power of this new center in Russia is another story, best considered after the Mongol invasion.

Thus the Norsemen were the first, none too successful agency to try to bring about centralization and a common rule in Russia, and towns like Novgorod are the best proof of their failure. The Tatars are the second, whose regime we will now consider; Moscow was to be the third, and the successful attempt. (Kluchevsky, vol. I, chaps. XIX, XX.)

The Coming of the Tatars.

The Tatars came in 1224 and again during the period from 1227 to 1240, and while there were periods free from active invasion and conquest during the 13th and 14th centuries, none the less the domination of the Asiatics was continuous until the beginning of the 15th century, and complete independence was not won until 1480. Thus in this period of over two hundred years of

Tatar domination we may see a very decisive factor which retarded, directly, by active interference and indirectly, by offering a model of autocratic government once the domination was over, which Moscow used as the means to a permanent establishment of a state.

With the details of the Tatar invasion and domination we are not concerned,—only with the methods which they used to exploit and corrupt the country, incidentally affording Moscow an opportunity to supplant the invader and establish herself in his place. The Chronicle of Novgorod furnishes us with much of the detail. (Quoted in Beazley, pp. 51-55.) All the Russia that we have mentioned, all the free towns and the Federation of Kiev, as well as the numerous dependencies and colonies,—all fell before the Tatar except Novgorod. In its Chronicle we read,—that God, and the sacred apostolic cathedral of the Holy Wisdom, and the prayers of the bishop, of the faithful princes, and of the monks guarded the Republic. Only seventy miles away from the town the invaders turned back. But continued safety was won only at the cost of prompt official submission and the payment of tribute. The Republic "bursts with defiance" but under the wise leadership of Alexander Nevski yielded to the demands of the Tatars and survived, intact though subject, while her great rival Kiev received the full fury of the army of the invader, was sacked (1240) and so thoroughly destroyed that not till the 19th century did she again arise, as capital of Little Russia.

Though the Tatar Khans left to each principality its laws, its constitution and, usually, its dynasty, the authority of the latter became vested in the Tatar Overlord, necessitating for installation of a Prince, for settlement of disputes, for defence against charges, —indeed for any and every important decision or action, lengthy visits to the Khan on the lower Volga, or even at times to the Grand Khan in Asia. The Russian people under the local princes were compelled to pay heavy taxes, whose severity at times provoked rebellion followed by heavy punishment. It was, in large measure, due to the political adroitness of the Princes of Moscow in obtaining the privilege of farming these taxes, that they rose to power at the expense of the other local rulers.

But the influence of the Tatars was not shown only in such external matters of administration and taxation; it was as powerful and perhaps even more lasting in matters purely social. Russian princely and aristocratic families were bribed or forced into marriage with their Tatar lords; social custom, dress and, particularly, the attitude toward women underwent a change and reflected more

and more, with the lengthening of the oriental despotism, ideas and methods peculiar to the East. That the previous influence of Byzantium had created something of this attitude is undoubtedly true, but the consensus of Russian critical opinion is that the Tatar dominion doubly encouraged and made permanent what had been only a tendency.

The Tatar domination was also responsible for a great increase in the power of the Church, for the Mongols not only allowed the Russians to follow and enjoy their own Orthodox faith, but even encouraged and supported the Church as an additional means of controlling the country. The churches were exempted from taxation and the authority of the clergy received the same sanction and was placed under much the same system of restrictions as the secular power of the princes. Religion as a factor in Russian life and culture was thus greatly increased and "Orthodoxy" came to be almost synonymous with patriotism,—became, as it were, the outlet for patriotism which was, under the regime of the Tatars, denied other expression.

One other result of the period is worthy of notice. The pre-Mongolian division of power was more or less broken up, and princely power concentrated in the hands of a comparatively few of the stronger among them, subject, of course, to the Khan, while the power of the next rank in society, the Boyars or nobles of high but not princely rank, was weakened. The Tatars maintained Prince against Boyars, and strong Prince against weak Prince, provided the strong Prince was loyal in his attitude toward the Khan. The Tatars, in short, were a stepping stone to centralization, and the Princes of Moscow were those who used the circumstances to best advantage. (Kluchevsky, vol. I, chaps. XVII, XVIII.)

The Rise of Moscow and the Autocracy.

The rise of Moscow may be traced to several causes; its advantageous geographical position, the movements of colonists in her direction, and above all, the policies and personal qualities of her Princes. Moscow is near both the Volga and the Oka, communicates with both by navigable tributaries, lying, thus, in a sort of Mesopotamia, far from the turmoils of the South, not too near the frontier of the East and, consequently, became a harbor for the oppressed peoples of other regions. The Tatar sack of 1293 is almost the only instance of trouble from the Asiatics, though, in common with the rest of the Russian towns and cities, she paid taxes and suffered submission. But the greatest factor in the

growth of Moscow was the character of her Princes,—statesmen of a new order for Russia,—selfish, but far-seeing, and with a policy for both internal and external affairs. They were attentive to money matters; indeed, the first of their great rulers was known as "Kalita," i. e., the Purser.

This Kalita, 1328-1341, recognizing the power and advantages of the Church, obtained permission from the Khan to remove the chief bishopric to Moscow and, by adding to this factor of glory the additional one of obtaining permission to supervise the gathering of tribute from the other princes, created a new national center, which even the Mongols, in the times to come, had to recognize. This connection of the Church's chief seat with Moscow proved to be permanent, and the growing Church, with its widely scattered threads of influence, its wealth and power, helped to give to the new city a position of overlordship that the other factors reinforced. Moscow became "Mother Moscow," a sacred city.

This Muscovite policy of cunning and utilitarianism was carried on with increased success by Ivan III, "Ivan Veliki," i. e., John the Great, who ruled from 1462 to 1505. With this Ivan we are approaching modern times, and Russia of the period seems to have taken on more of a modern appearance. John is the so-called "Re-uniter of the Russian Land," not yet quite free, at the beginning of the reign, from the foreign Asiatic overlord, but nearly so. Ivan trebled the extent of the Moscow domain, raised it to the dignity of a kingdom, arrested the growth and advance of Poland-Lithuania, brought under the sway of his city all Russians not under Western domination and won a port on the Baltic and on the Arctic. Above all, by his marriage with Sophia Palaiologos, he united his family with the Eastern Empire and claimed thereby, for his country, the inheritance of the dethroned Caesars. He developed intercourse with the West, used Western talent in the service of Russia and was, in many ways, the forerunner of Peter the Great. A real national feeling began to exist, in a profounder and broader sense than had been the case during the period of the free democracies, a national feeling based on the recognition and acclamation of a monarchy. "Muscovy" began to be discovered by the rest of Europe, and travelers' tales, sources for much of our knowledge of the period, began to appear. The Byzantine crest of the double eagle was adopted as well as the term "Autocrat." The Church supported all this, and Moscow came to be, in the language of the time, "Tsargrad," the third and final Rome, and all that the term implies of centralization and political theory went

with the name. (Kluchevsky, vol. I, chaps. XVI-XVIII, and vol. II, chaps. I-IV.)

The history of Russia from the time of Ivan Veliki, at the beginning of the 16th century to the accession of Peter at the end of the 17th, is the history of the varying fortunes of the Moscow power. Of real democratic assemblies we find no trace, the struggle for power is rather between the upper classes and the monarchy than between the people and the Tsar. The Sobor alone, which indeed bears the name of "General Assembly," but which is representative rather of the middle and upper clases, made even a pretense of self-government. Tsar and nobles contended for mastery, and each endeavored to have on his side whatever other power or wealth existed in the country. The Sobor was but a pale reflection of the freer institutions of the old period.

The 16th century was a period of conquests and expansion, and a corresponding growth of power of the Tsar, the declaration of "divine right" in the person of Ivan the "Terrible," the beginning of serfdom through the activities of Boris Godunov, who finally became, himself, Tsar on the death of Ivan's son. The "smutnoye vremya," or Time of Troubles began the 17th century, and was followed by the election, by the Sobor of 1613, of Michael Robanov, the founder of the last line of Tsars. The 17th century was a period of internal development, change, reaction, reform, discontent and religious disturbances. This was the heritage of the Time of Troubles; torn asunder by civil war and confusion over the dynasty, Russia had stood comparatively still while the rest of Europe went through the Renaissance and the Reformation. Russia seemed sufficient to herself,—if only she could embody that self in a pure form,—aloof from "heretical Rome," "degenerate Constantinople" and the rest of the non-Russian world. (Kluchevsky, vol. 11, chaps. IV-VI; vol. III, chaps. I-VI, XIII-XVI.

By the end of the 15th century the power of the Veche had been lost except in Novgorod and Pskov. Elsewhere, indeed, it continued to exist, particularly in the southwest, but all elective and political power had disappeared. In 1487, Ivan the Third, with the might of rising Moscow behind him, demanded the submission of Novgorod,—"No assembly, veche; no elected magistrate; and the whole power in the hands of the Tsar." (Chronicle of Nikon.) Thus far had Moscow grown even at this time. (Kovalevsky, 100, chaps. IV, V.)

With the decay of the Veche, and before the creation of the Sobor, there existed but one check on the Tsar,—the "Duma," or

council of the "Boyars" or nobles. This was not in any sense a democratic institution, but was some check on the Autocracy, in that the Prince was obliged to ask and to consider the advice of the nobles of the Duma in financial, military and executive matters. Up to the middle of the 15th century there is evidence that the individual Boyar had the right to withdraw from the service of one Prince and enter that of another, but with the maturing of the full power of Moscow the rights of both Duma and individual Boyar became much restricted, and the body became more and more merely advisory and aristocratic.

The "Sobor Zemski," or "land assembly" was the creation, in 1550, of Ivan the Terrible. This body was formed by the coalescence of the Duma and another similar body, the High Commission, together with representatives of the lower nobility, the military forces, heads of governmental departments, trade-guilds and the Church,—all appointed, and mostly drawn from the cities, Moscow predominating. The members were such as, in the opinion of Ivan, knew best the difficulties of the time and could offer solutions. The Sobor has never been abolished by law; it simply ceased to function under Peter in 1698, but there has been no reason why it should not have been summoned at any time since had a Tsar so wished. Its history from 1550 is an interesting, and at times promising attempt to return to real representation and democracy, but the membership was never completely representative of all classes, and was not elected. The Sobor of 1606 elected Shuiski as Tsar, with the aid of the mob of Moscow, and limited his power with a constitution. Another Sobor deposed him in 1610 and imposed restrictions on his successor. The most truly representative Sobor was that of 1613 which elected Michael Romanov, and which was for the first two years of his reign the real authority. Michael bound himself to the Sobor to make neither peace nor war, to make no new laws nor to alter old ones, nor to tax without its consent. In 1619 the Sobor elected the Patriarchate; in 1645 it confirmed the coronation of Michael's successor, Alexis; in 1682, it pronounced in favor of Peter, and the last Sobor, of 1698, pronounced judgment on the Princess Sophia who, in Peter's absence, had tried to usurp the throne. But as the Romanovs became stronger, and the period since its last election longer, the necessity of the support of the Sobor became less apparent, and the institution waned both because of this increased power of the autocracy as well as the failing spirit and enterprise of the people, a characteristic of the time, not only in Russia, but throughout Europe. (Kovalevsky, 100, chap. V; Kluchevsky, vol. III, chap. IV.)

Recapitulation, Economic Conditions and the Condition of Education to the Time of Peter the Great.

The preceding two sections have given as brief a summary of the political and institutional history of the Slavs from their origins to the accession of Peter as seems commensurable with an adequate understanding of the later developments which are to be our chief concern. It remains for this section to indicate the chief economic factors and conditions, show how they were in part created and in part solved by Western influence, and to sketch the educational conditions of Russia during these years, keeping in mind that education as an organized system really begins with Peter.

The story of the Scandinavian inroad which has been narrated in connection with the early rise of Novgorod is interpreted by some Russian historians as economic in character rather than political. The word "Variagi" is said by Kluchevsky to come from a Russian root, meaning peddler, vendor, tradesman or merchant, and from this point of view the early political development is really to be considered as a trade supremacy by the Northmen who were, perhaps, in possession of the southern and eastern trade before the Slavs entered into the country in great numbers. As a matter of fact, regardless of the real meaning of the legend or chronicle, the influence of these Northerners can be and has often been overestimated. They were probably not numerous and it would seem that they were soon absorbed by inter-marriage and assimilation. That they were an economic influence and an asset in directing the early development of the Slavs there is no question, but from all the evidence it would seem that they were not preponderant in other directions, for the Slavs brought with them, as we have seen, their own political and social habits and methods.

The weight of historical evidence points, then, to a fairly well established trade between the Norsemen and the Black Sea and Azov region, to which the Slavs became heirs. It is noteworthy, in this connection, that the Slavs did not concern themselves with agriculture till the end of the tenth and the beginning of the eleventh centuries, when changed internal and external conditions made it necessary. Trade was everything and determined the nature of the political conditions which we have seen. The chief Slav articles of commerce were furs from the forests, bee products, and slaves, won for the most part in warfare. It was in connection with the decline of export trade and the growth of agriculture that serfdom arose, the several factors mutually influencing one another, from the eleventh century, on. Under such conditions of trade, with ac-

cumulated stores and wealth, it was natural that fortified, semi-independent towns with local government and surrounding dependent environs should grow up. Examples of these have been described. The successive rise and decay of Novgorod, Kiev, Novgorod again and, finally, Moscow is, in part, the reflection of a shifting of economic and commercial importance, from one point of the country to another. Military force often helped to determine this; the Tatars, too, helped in the case of Moscow. As for the Variagi, while part of them were themselves traders, part were also mere mercenaries, hired to protect the trade centers, and usurping the power they had been hired to serve. (Mavor, vol. I, book I, chap. I.)

The transition from this first type of economic life was the result of two factors, first, the growth in the number and value of slaves; second, the Tatar invasion. The Kiev civilization had already begun in the twelfth century to employ slaves in agriculture, and the institution of inheritable estates with attached slave cultivators was beginning to develop, with consequent wealth of a new kind. At the same time the rivalry between neighboring Princes, which had existed under purely trade conditions, now began to take the form of raids on one another's property and estates for the sake of capturing additional slaves. It was this consequent lack of mutual protection and support which made possible the easy conquest by the Tatars in 1229-40. The Tatars swept Kiev out of existence and forced the migration of the Kiev population, slaves and masters, to new regions,—to the Northeast and the plains of the Upper Volga. This is one of the first of the migrations in historic times which has had momentous results. Political and social organization was broken up, and new economic conditions established. In the new region of the Upper Volga we find the establishment of the appanage system corresponding, with characteristic differences, to the feudalism of Western Europe, brought to its most centralized form. The appanage system was built in different economic conditions than feudalism,—the village population in the former being unfixed and distinctly migratory, in the latter bound to the soil. In the former free transfer of "service" was a basic principle, leading to endowment of the free servant with land as a measure to secure permanent obligation to his Prince. In this latter fact we find the germs of serfdom or slavery of the peasant, not to be confused with the slavery of the captives in war of the earlier periods. The origin of serfdom was gradual and a result of economic conditions, —poor productivity, heavy debts and no way in which to pay them.

There was first the debt due the owner of the territory with which the peasant had been "endowed," secondly the state tax. Both were heavy, often amounting to all the wealth produced on the land necessitating hunting, fishing and peasant industries as a supplement to the products of the ground. The additional fact of competition among princely owners, showing itself in stealing cultivators from neighboring smaller estates, or in bribing them to change service, resulted in decay of the smaller estates and consequent embarrassment of the State itself. This is the reason given for the celebrated "Ukaz" of Boris Godunov in 1597, which abolished the right of the peasants to leave land once taken over for cultivation by them. The right of the proprietor over the person of the cultivator was a later development. (Mavor, vol. I, book I, chaps. I-V; Kluchevsky, vol. II, chaps. XII-XIII.)

The question of Western influence is the connecting link between the economic and the educational situation, in all but the very beginnings of the latter. During the 15th and 16th centuries there was intercourse between Russia and the West,—but no marked cultural influence. Only with the 17th century did Russia manifest a sense of inferiority, of mental and moral submission, and begin to show a desire to borrow not mere amenities of life, but views, ideas and fundamental social institutions. This was due fundamentally to one fact,—the inability of the Moscow government to make domestic resources meet material requirements. The old feeling and staunch belief that antiquity had given the country all that was needed for development was no longer firm and valid. Declining faith in national powers and institutions gradually led to a desire for guidance and instruction from the alien and hitherto despised West. Russia saw clearly that the 16th and 17th centuries had produced enormous changes in the West,—centralized states, greater freedom of labor, technical inventions, bourgeois labor and industry,—in all of which she had no part. In Russia the corresponding period had been spent in war, the upkeep of court, government and the privileged classes, none of which had or could have done anything for the betterment of the country as a whole. Thus Russia was more remote from the rest of Europe in the 17th century than she had been at the end of the 15th.

Russian culture of the period was essentially Eastern, Byzantine, and was under the control of the Church as its directing force, yet the Church did little to use that culture for any but its own purposes, paying comparatively little attention to the life of the citizen except as a member of the Church. The economic, the social, the

political life were untouched by the power of the Church, except that the Church supported the claims of the Autocracy. But it offered no forms for civic or social life, and did little to increase the stock of knowledge or means of getting it. On the other hand the influence of the West was introduced by the State and acted directly on manners and customs, introducing new political and social ideas, and opening up new fields of knowledge and introducing new methods. Put in other words, the Church influence was ecclesiastic and embraced in its limited way the whole community, while Western influence was political, and affected the individual citizens as such. These two elements in Russian history persist throughout the succeeding centuries, developing and constantly growing more complicated, and in their light only are many of the problems of Russian history to be clearly understood. Adherents of the East come to be called "Russophiles," later "Slavophiles"; their opponents are variously called "Gauls," "Freethinkers," "Voltarians," and finally "Westerners."

Western influence began with the borrowing of military and technical material, guns, machinery, ships, and then skilled labor to produce them on the spot. Then came foreign officers to train native troops, which had been shown to be decidedly inferior to the forces of the West. Next came the development of mines for iron and the establishment of Russian centers of industry and manufacture, still under the management of foreigners, imported often en bloc and under contract to teach Russian apprentices their trades and methods. From these small beginnings the Moscow government at last came to the realization of the absolute necessity of developing all the resources of the country, and rewards were offered for the discovery of deposits of ores and minerals. Foreign quarters began to spring up in the larger towns, particularly in Moscow, where the German quarter came to be almost a separate town. Thus by 1650 Russia had absorbed a great part of the material culture and technique of the West.

But as yet there was little attempt to introduce Western learning and knowledge. Rather the contrary attempt was made,—to use the material products of the West and yet retain the Eastern attitude of mind. The beginnings of the establishment and growth of the learning of the West date from about 1650, by which time the technical culture was widely diffused. Schools had existed in Russia even in the pre-Mongolian period, in which the rudiments of Christian learning had been taught, by the Church for the most part. The Tatar invasion had effectively destroyed many of these, but

some traditions and books had been preserved, and increased by what few fragments of medieval learning had crept into Russia in the 15th and 16th centuries. The character of these early schools is well indicated by the inscription in Church Slavonic underneath a picture showing an interior with teachers and students: "In order to praise God it is every man's duty to study written signs of words. Thus, by learning, he understands (what is) good, (and) will succeed (in entering) the heavenly realm (together) with the saints. For this reason, Oh Youths, maintain this study; do not waste (your) time and (even) hours in (worldly) amusement." (Text and picture in 67, p. 18.)

But in the early part of the 17th century we find two influences combining to introduce newer and more modern learning,—the Church, and the nobility and people of wealth. The Church's interest was due to the necessity of combatting the influence of the Jesuits, which was rapidly growing in southwestern Russia; the interest of the higher classes was broader. This new attitude of the Church was in direct contradiction to its opinion under Boris Godunov, late in the 16th century, when it discouraged a proposed university on the ground that "it was not wise to entrust the teaching of youth to the Catholics and Lutherans." The most important of the schools established to counteract the Jesuit influence was that at Kiev, founded 1631, by the Kiev Metropolitan, Peter Mogila, a man well versed in Western culture and who had studied at the Sorbonne. It was felt that the heterodoxy had to be fought on its own ground, hence the curriculum was almost a copy of the Jesuit schools of Poland, and included scholastic philosophy, theology, rhetoric, Greek, Latin and Slavonic. The school was divided into eight classes and Latin was used both as the medium of teaching and as the language of conversation for the pupils. It was this academy which furnished the bands of scholars who corrected the sacred books of the Russian Church, and afforded a nucleus for the later work of Peter the Great. It was also the center from which came the translations of works of Western culture, and its graduates were among the first teachers and writers of the following period.

Many private persons of wealth vied with the State and the Church in furthering the enlightenment of Russia. T. M. Rtischev, the trusted adviser of Tsar Alexis, built a monastery near Moscow, and in 1649 summoned at his own expense some thirty learned monks whose function was both to translate foreign books into Russian and to teach the Kiev curriculum to those who wished to enter as scholars. This is but one example among many; other families

of wealth engaged foreign tutors, as did Alexis himself for his children. In 1685 the Moscow Slavo-Graeco-Latin Academy was founded, with much the same object as the Academy at Kiev. Thus did the two radically different motives for the introduction of the new learning continue to spread knowledge of Western culture. The Moscow school was in charge of the two brothers Likhudi, learned Greeks who had taken their doctor's degrees at Padua, and who were, therefore, not to be suspected of heterodoxy. Toward the end of the century they removed to Novgorod and founded still another similar school.

Thus, beginning with the purely material aspects of Western culture, Russia gradually came to feel the need of the thought and teaching behind them, both as propaganda against heterodoxy, and as a background for leisure and social refinement. In this first adoption of the culture of the West the motives are mixed and the moving forces varied. With the next period, that of Peter the Great, education becomes emphatically a matter of State and national concern, and with Peter, as before him, education is closely connected with economic and political conditions. (Kluchevsky, vol. III, chaps. XIII, XIV; Milioukov, 69, vol. II, pp. 250-294.)

This brief survey of the pre-Petrine period has attempted to make clear the main springs of Russian history, and to make possible an understanding of the problems of Russian education as influenced by and in turn influencing the other factors of the national life. Since education was not, until the 18th century, a conspicuous element of Russian history, the emphasis, up to this point, has been on other factors. In the succeeding periods the emphasis will be reversed, and education will receive the major attention, and be interpreted in terms of the other conditions whose beginnings have been sketched in this chapter.

(See also for this whole period in detail, Soloviev, History of Russia. Many sources and documents quoted.)

CHAPTER III.

Peter the Great (1689-1725), to Catherine II (1762)

The preceding chapter has traced the rise and growth of the early democracies, the subsequent rise and development of an autocracy, and the very beginning of the education devoted to state and class ends. We shall be concerned, in this chapter, with the conscious creation of a system of education, designed to further the more material purposes of the government and its policy of educating servants for the state. We shall find, also, the beginnings of that opposition which later becomes so much more open and bitter, and which constitutes the fourth of the movements which we are tracing.

The Problems and the Reforms of Peter.

The reign of Peter is the beginning of many new things in Russia. A man of tremendous vitality and energy, he may justly be said to have attempted to lift Russia as a whole and to place it in the commanding position which he thought her due. The beginnings of both reform and revolution are to be found in his reign.

Even to sketch the details of the activities of his career would be impossible here; we can only summarize his main problems and his solutions, leaving his general educational policy to a following section. The main tasks which lay before Peter were: the political unification of his state, the creation of a satisfactory frontier, the development of the productive powers of the country, and the introduction of modern ideas of culture and living, i. e., the social regeneration of the people. All this is but another way of saying that the West and Russia were more and more parts of a larger Europe, or that the ideas of autocracy, nationalism and (later) orthodoxy were in the process of formation.

As means to the attainment of his purposes Peter, first of all, developed an army and created a navy. In place of the Sobor, which we have seen was declining both in power and real representative value, Peter established a highly centralized bureaucracy, though permitting some degree of local self-government for the cities. Throughout all these activities his knowledge and experi-

ence of the Western nations is apparent. There was, moreover, a contributing cause for the suppression of the historic representative bodies in addition to their decayed character and condition. This was the essentially new kind of government and the radically new ideas which Peter wished to establish. The Sobors, even had they been at this period at their best, were too inculated with the superstitions and the ideas of old Russia, the very Russia which Peter wished to change. They and the members of which they were composed, had they been ever so truly representative, had no knowledge of the science and the politics of that West which Peter was competing with, were too imbued with religious and class standards, too illiterate. That there had been no schools to teach them did not change the fact, and Peter could not wait for their enlightenment in his own schools. They were also opposed to foreign merchants as free competitors, in a word, they represented all that meant nothing to Peter. Moreover, the time in which Peter was forming his state was throughout Europe a period of suppression of representative government, and a time of "enlightened despotism." With this Peter became familiar in his travels, indeed, he is credited with expressing a willingness to exchange half his lands for the gift of another Richelieu to teach him how to rule. What he saw, in place of representative assembles, were well-paid, self-made men in the service of the rulers.

As for economic doctrines, Peter brought back with him the doctrine that a country should import as little as possible and export a maximum. To carry this doctrine out, meant the training of his people, and so hundreds of artisans were gathered and sent to Russia to teach their trades, and his ambassadors at the European courts were literally employment agents to expedite and continue the process. In addition, Russian youths were sent abroad as apprentices, the costs being paid by the state. A still further development was the establishment of factories; when Peter came to the throne there were no large manufacturing plants, while at his death there were some 233 factories and foundries, private or state-owned, or subsidized by the state.

Other changes, more directly social, abound. The breaking down of the oriental seclusion of women, the modification of many other oriental customs, survivors of the influence of the Tatar regime, the spread of culture and education, the abolition of rank due solely to birth and the substitution of service for all and merit in accordance, conscription for the army as well as for industrial and state work and construction, the breaking up of the "house-

hold" as the taxable unit and the substitution of the capitation tax, the creation of a Senate and ten Ministries or colleges, the division of the country into governments, the abolition of the Patriarchate and the substitution of a Holy Synod with a layman at the head, thus making the Church, in a sense, a department of State,—all these were items in the whole scheme of the activities of Peter.

In all this it is important to notice one main cause,—the West. The desire to imitate the West, to compete with the West seems to have been at the bottom of it all. War was the normal and the most frequent state of Russia during Peter's reign and, in a sense, the necessity to win led to reforms, and the reforms enabled further and better warfare, again leading to further reforms. War, Peter said, was the school of the nation to teach it the necessity of reform, and each prolonged the other. But Russia leaves the leadership of Peter definitely turned to the West. (Kluchevsky, vol. IV, chaps. LXI, LXII, LXVII; Soloviev, vol. XVIII, chaps. I-III; Mavor, book I, vol. I, chaps. V. VI; Kovalevsky, 101, chap. IV.)

The Educational Reforms and Creations of Peter.

It is quite comprehensible, then, that Peter should have turned his attention to schools and education. To bring his country even to the beginning of that development which he wished for her, it was impossible to rely forever on imported specialists and artisans, —the Russians themselves must understand the processes and the technique involved. Only in the light of his reforms, projected or carried out, can we understand the new course of education and the new types of schools which were now founded. In principle they were completely the opposite of those few schools which had existed before him and upon his accession. The schools of the 17th century had been religious, had been maintained in the interests of the Church, and their curriculum had been mainly literary; Peter's schools were secular, were a part of the State, and were technical in their curriculum. Peter needed helpers, and these schools were to produce both them and his successors. In these schools there was little or no attempt made to give a liberal education; rather, the minimum of general ability compatible with definite technical knowledge for a career in the service of the State, was the ideal. He tried at one time to use the existing Slavo-Graeco-Latin Academy for his purposes, but found it useless.

Peter's first school, in accordance with his own ideas, was established in 1701, in Moscow,—the School of Mathematics and Navigation. This existed for fifteen years, and produced not only

officers for the navy, but civil and military engineers, school teachers and architects. When the Naval Academy was established in St. Petersburg, in 1715, the Moscow institution became a preparatory school for the new academy. For these schools most of the teachers had to be imported, for there existed no supply in Russia, and few of those sent abroad had acquired sufficient knowledge to teach. A professor of the University of Aberdeen, Farquharson, was director of the Moscow school, and was the author of the first Russian manuals of mathematics. In 1712, during a period of rest from war, Peter founded the School of Engineering and the Artillery School.

From the day of entrance to these schools, the student was considered a servant of the State. Moreover, as by Peter's decree every noble must serve the state, and the only way to such service lay through the schools, it became the obligation of the nobility to go to school. Opposition on the part of the conservative among them, who hated Peter's reforms, led to the opening of the lower grades of these schools to other social classes, thus preparing them for inferior places in the civil service. Peter created a system of ranks or "chin," a hierarchy of civil service. Fourteen ranks existed, of which the four highest were hereditary, and promotion was made to depend on service and position. Teachers, graduates, holders of degrees, all had their appointed "chin."

Peter also initiated the provision of elementary education by the State. It seems to have been the tradition that elementary education could be gotten without schools, and that the latter were necesary for higher or secondary education only. The greater number of reading and writing schools, before the reform of Peter, were those of the religious dissenters, the "raskolniki," though some existed, also, in connection with the monasteries, but in them all the religious motive was predominant. Peter's first move in this direction was the establishment of the "cypher" or arithmetical schools, in 1714. Here were taught reading, writing, arithmetic and the elements of geometry, teachers being supplied from the graduates of the Naval Academy. They were free, and open to all classes, and were later made obligatory for all children aged ten to fifteen, a law being passed that no man might marry unless a graduate. But this ukaz of 1719 could not be enforced. In 1721 a ruling was passed requiring the bishops to establish elementary schools in their respective eparchies. These schools were also supplied with teachers from the various academies, but were under immediate supervision of the Holy Synod. But this double system of schools

weakened the growth of the first cypher schools,—indeed, this is but an early instance of an almost constant duplication of elementary schools. The curriculum of the Synod schools was less technical, and more religious, and this accounted for their greater success. Many of the cypher schools were closed, others were merged into the Eparchial system, though the Holy Synod, after Peter's death, refused, because of their secular nature, to assume charge of the remaining cypher schools. Still another variety of elementary schools was created after Peter's death,—the Garrison Schools for the children of soldiers, in 1732. These constituted still one more source of competition with the cypher schools, so that by 1750 they had completely disappeared.

One other project of Peter which he did not, himself, carry out, remains to be considered,—the creation of an Academy of Sciences, in imitation of those so widely spread throughout the Europe of the time. Peter had entered into correspondence with Wolf, the German philosopher, and with Leibnitz, and had organized a plan for the creation of seventeen professorships, and a gymnasium which was to act as a feeder for the Academy. That is, it was to be at once a learned society, a university and a secondary school. But its history did not match the inspiration which planned it, and Peter died the year before it was opened. (Tolstoy, 71, pp. 1-38; Kniazkov and Serbov, pp. 30-54; Milioukov, 69, vol. II, pp. 295-308; Darlington, pp. 10-15. The account of this period, issued by the Ministry of Public Education, itself, is Source No. 3, "Historical Outline of the Activities of the Ministry of Public Education," Introduction, chap. I.)

Peter's Successors, to Catherine the Great, 1762.

The period immediately after the reign of Peter may be characterized as one of decline; Peter's reforms lose, little by little, their full force and direction, and the country, through its highest offices, comes to be more and more ruled and administered by foreigners,—chiefly Germans. Not until Catherine, herself, to be sure, a German, do we again find a firm hand guiding affairs. From 1725 to 1762 six people occupied the throne, often through force, so that the period is known as that of the "palace revolutions." This was largely due to the ukaz of 1722, wherein Peter had proclaimed the right of a ruler to name his successor, thus taking away the power of election which the Assembly or Sobor had formerly possessed.

The aristocracy and the clergy, followed by the great mass of the rest of the people, returned as far as possible to the older ways of life. But all the results and efforts of Peter could not be frustrated. The other side were loud in their praise and regret, and legends kept alive the spirit of reform. The general tendency of the aristocracy and the bureaucracy was to rest on Peter's laurels, devoting themselves to pleasure rather than to the further development of the plans which had been left unfinished by Peter. A successful effort by the aristocracy resulted in the complete enslavement of the people, and the emancipation of their own class,—thus breaking Peter's rule that all should serve the State and have rank and award in accordance with real merit. This was largely the result of the use of the army, especially the regiments of Guards which were composed almost entirely of the sons of the nobility, and which were, during this period, one of the most important factors in disposing of the throne. The period from 1725-1762 is also one of powerful favorites and of court intrigue, and the court favorites, for the most part foreigners, controlled the destinies of the country.

All this activity of the nobility was not sheer haphazard intriguing,—there was a definite effort so to bind the throne that no Tsar might again be as powerful as Peter had been. In 1730 an attempt was made on the part of the nobility to limit Anne by a constitution, but the plan failed. There were, too, ardent Westerners, such as Prince Golitsyn, who wished for reform and culture perhaps as strongly as Peter, but who wished it to be under the control of the aristocracy rather than an autocrat. Under Anne all the vices of an autocrat were exhibited with none of Peter's love for his people and their betterment. Her reign is characterized by the power of German favorites, even the army was under a German, Münich (Russian—Minikh.) The manifesto of 1762 completed the "emancipation" of the "dvoryanstvo" or nobility, and by its provisions they were freed from all but voluntary service to the state, except in moments of national crisis, and the additional obligation of providing for the education of their sons. We shall now consider the educational activities of this period. (Soloviev, vol. XVIII, chap. IV to vol. XXV; chap. I, Kluchevsky, vol. IV, chaps. LXX-LXXIII; Kovalevsky, 101, chap. IV, pp. 109-131; Mavor, vol. I, book I, chap. VII.)

Though the proclamation of 1762 had freed the nobility from the necessity of service, and secured their economic independence, it did not mean that the bureaucracy was to be in other hands, or that there was no further need for an education fitting the upper classes.

Indeed, in the domain of education there was, perhaps, more effort made to carry out the plans of Peter than in any other.

First of all, Peter's projected Academy of Science was opened by Catherine I in 1726, and liberally endowed. Men of European fame were appointed during the next thirty or forty years, such as the Bernoulli brothers, Euler, Bulfinger, Muller, and Schoezer. The conditions of their appointment required that they actually give lectures, and since, for some time no students appeared, they were forced to lecture to one another, until the experiment was tried of importing students from abroad, particularly from Germany. In the gymnasium, which had at first a better fate, the languages of instruction were German and Latin, but students of the higher classes ceased to attend. In both the gymnasium and the Academy proper, the study of languages and mathematics prospered more than that of history, for at that time in Russia, as since also, the subject of history was not really open to free and unbiased investigation. The work of translation, too, which had been part of Peter's plan, was carried on. The Academy, for the first forty years was very indifferently attended, the number of students varying from two to some twenty, of all classes, for it must be remembered that this institution was not for nobles alone; indeed, the failure of the nobility to attend has been explained by just this fact, that it was not exclusively an upper class institution.

But the desire was growing, on the part of the nobility, for a higher education. New interest in foreign cultures and languages resulted in the sending of children abroad and the importation of foreign tutors, as well as the establishment and growth of private boarding schools, established by foreigners, which sprang up in large numbers during the reign of Elizabeth. The Naval Academy, the Kadetski Korpus (founded 1731), the old Slavo-Graeco-Latin Academy, all numbered many nobles on their lists; by 1764 there were some 27 such institutions giving higher education to some 6000 pupils. At this period there was no governmental control or check upon the private schools, nor any inspection; the ideas of Peter on education had been forgotten, and the suspicion of the State concerning private teaching had not yet risen to the point of active interference. But there was some apprehension, and the first step was that of competition. It was felt that, with more and better facilities provided by the state, with more and better teachers who were also Russians, the growth of the private schools would cease. So, in 1755, the government established the University of Moscow, and following the precedent of Peter, founded a gymnasium in connection with it.

This new university had three faculties, philosophy, law and medicine, all students for the latter two studies being required first to pass through the course in philosophy. The professors were bound to deliver public as well as university lectures, but as Latin, until 1768, was the language used, the public profited little. Strict supervision was exercised by the State over the actual instruction. Owing to the social prejudices of the nobility, there were two gymnasia in connection with the university, one open only to the nobility, the other for the so-called "raznochinitzy." In both, modern languages were an important part of the curriculum, but in the school for the nobility military sciences played a far more important part than in the other, where more plebian and practical sciences were substituted. French or German was the language of the class room, for the majority of the teachers were, as usual, foreigners. Grants and bursaries were given to individual deserving students. In 1758 a similar double gymnasium was established at Kazan, and Shuvalov, who was the prime mover in the University-gymnasium movement of the time, proposed to create two more universities, at St. Petersburg and at Baturin, together with other gymnasia in the main towns, and schools preparatory for the gymnasia in the smaller towns. But the demand was not yet such as to justify such foundations, and the death of Elizabeth effectually put an end to the plans.

Every incentive was given to raise the number of students at the universities. Each student, regardless of his social station by birth, was presented with a sword upon entrance to the university and received the proper 'chin', assured a good position upon entrance into the service of the State, and allowed to count the years of his study as years of service. Free instruction and free quarters were given to many but, in spite of all these efforts, the number of students seeking instruction at the universities was not large. The whole scheme was still in advance of the needs and the demands of the people.

In 1775, by Imperial ukaz an effort was made to bring private schools under governmental control, and all foreigners were ordered to submit to examination at St. Petersburg, at the Academy of Sciences, before teaching or opening schools. But in the absence of a system of inspection and control this early effort at supervision failed in practice. (Milioukov, 69, vol. II, pp. 308-313. Tolstoy, 71, pp. 15-47. Kniazkov and Serbov, pp. 54-60. Darlington, pp. 15-21. Source 3, Introduction, chap. I.)

CHAPTER IV.

Catherine II to Alexander I. 1762-1801

The Policies and Activities of Catherine.

After Peter, Catherine is the next great outstanding figure met with in the course of Russian history. The time between had produced no great reformer or teacher; Catherine was to prove to be both, but in a different sense than Peter. Catherine was a German princess, and usurped the throne, condemning her son, the rightful heir, to spend thirty four years virtually in imprisonment. In a sense, Catherine was rather the reflection of her age than the creator of its spirit; she accomplished her reforms rather by following current philosophical principles than by setting herself a goal and rushing to it, regardless of obstacles, as had Peter. She was more cautious, played at politics rather than at war, and never hesitated to undo what has been done if circumstances pointed that way. The ideals of Catherine, though but partially attained by her, remained in power until the freeing of the serfs under Alexander II, in 1861.

Catherine was the first Russian ruler who could read and write; she may be termed the first who was really educated. But her education was an aristocratic one, and this was reflected not only in her efforts for the schools, but in her general policy.

Apart from predominantly external matters such as the three partitions of Poland, the conquest of the Crimea and the acquisition of the northern coast of the Black Sea, as well as altered foreign policies, with a shift to Austria and France away from Prussia, the reign of Catherine is remarkable for the attention paid to social and class reforms. The chief aim of the state and the Autocracy was not the extension of territory or even the consolidation of that which existed, but rather the well being of the subjects of the country, an aim which, however far short Catherine came in fulfilling it, was none the less definitely and frequently expressed by her. Under Peter internal well being had been more or less of a means to other things, under Catherine it becomes an end in itself. Nor is it only from above that the efforts were made for social reform,—the beginning of social rebellion is also found. Unfortunately, Catherine was unable to see that social reform could and must take place from

some other point of view than from that of the nobility. It is perhaps because of this error at the very basis of her plans and reasonings, that she only began, rather than finished a process of change, to which each succeeding reign has contributed its share.

Catherine's ideas of reform and advancement bore yet another contrast to those of Peter; they were cultural, not technical, and preeminently French in origin, and she endeavored to bring them about by commissions and discussions rather than by edict and law. Reason was more of a religion to her than the faith of the church. Montesquieu was her principal guide and inspiration, and his 'Spirit of Laws' her chief source for her doctrines,—often, to be sure mis-read and mis-quoted. She showed a tendency to use just those doctrines which fitted in with existing conditions and her predetermined plans, and one which best fitted in with these things was, "Nobility is the natural support of autocracy". It was not that Catherine did not wish well to the lower orders, but she overvalued her dependence on the upper classes. Thus the Legislative Commission of 1766, for which Catherine prepared a lengthy philosophical guide, the 'Nakaz', or Instructions, accomplished but little, for while the Nakaz was in theory radical, Catherine rallied to the support of the nobles when the question of the freeing of the serfs was brought up. Furthermore, the light representation of Church and lower classes in this commission left the vote in the hands of the nobility. There were good intentions and good theory, at least on the part of Catherine, but that was all. Still further, there had been risings of peasants in the preceding years, and the question was a delicate one. As a final result of all the discussions, the nobles gained an even more secure and satisfactory position for the time being, and the serfs reached a still more unsatisfactory condition, with the one rather barren consolation that serfdom had been recognized as bad in principle, and the idea of self-liberation had been circulated. Even the 'Imperial Free Economical Society' which Catherine founded in 1765 produced nothing but essays; no action on the prize question, "The Relative Advantages of Private and Public Ownership of Land," was taken.

But the peasants themselves were becoming more active. From 1762-1769, and sporadically to 1775 there were outbreaks and uprisings on the part of the peasants, culminating in 1775 in the rebellion of Pugachev. Pugachev was an illiterate rascal, but he promised, posing as Peter III, to liberate the peasants, destroy the nobility, grant full religious freedom and to shut Catherine up in a convent. It was a social and economic war against the nobility, in principle and in fact. For a year, with an army of peasants and Cos-

sacks he terrorized the whole basin of the Volga, capturing towns, destroying property and constantly growing stronger, even troops going over to his cause. It was not until late in 1775 that a large force brought these disorders to an end. But the whole movement was an omen of future discord and social struggles.

It was again practical applications of radical principles, this time in France, that made of Catherine a reactionary at the end of her reign. The French Revolution alarmed her; radical writers were imprisoned and exiled; it was perhaps too much to expect of her that she should permit the application of her theories to make her position less secure and force her to be less of an autocrat in her person and her place. (Kovalevsky, 101, chap. V. Kornilov, vol. I, Introduction. Mavor, vol. I, Book II, chap. V. Soloviev, vol. XXV, chap. II to vol. XXIX, chap. II.)

Educational Reforms and Growth from 1762-1801.

It is clear that, in spite of Catherine's beliefs, the lower classes suffered during her reign. But looking at the condition of other affairs, there is quite enough to justify the calling of her reign brilliant. Literature and drama flourished, Catherine herself wrote and was a patron of art, memoirs and journalism were part of the literary atmosphere, and the Russian Academy of Letters was founded in 1783. Though German by birth, and French by intellectual leaning, she yet was able keenly to feel the spirit and thought of that part of Russia—the nobility—with which she identified herself. The movement for the assimilation and the inculcation of Western culture which Peter had begun, perhaps too soon, reached its zenith under Catherine, but it was now cultural rather than technical, and this time so profoundly modified Russian society, apart from the lower classes, that politically and intellectually Russia became acknowledged as a part of Europe. The reign of France and French throughout the continent was repeated in Russia; the capital became French in manners, literature, language and philosophy. Yet it may be doubted if the influence was after all very deep, in view of the horror and reaction subsequent to the French revolution; it was not until ideas of freedom penetrated lower than the nobility that they found fertile and nourishing soil.

In matters of educational theory, Catherine turned to Montaigne, Rousseau, Basedow and Locke. Indeed, her "Instructions" to Prince Saltykov, tutor to the Grand Dukes, contain almost exact summaries of passages from Locke's "Thoughts" (see Tolstoy, 71, for parallel passages, pp. 91-100, Appendix.) Catherine's aims were

as different from those of Peter as his had been to those of the Church. Following Montaigne, she considered education as a force for moulding the future, to produce a cultured individual and race, to form conduct and character, to shape both body and mind. There was no trace of the utilitarian technical ideas of Peter, directing his educational activities for the advancement of the power and productive forces of the State. Catherine's activities extended over education for girls, a cadet school for the sons of gentlemen, a scheme for compulsory national education, learned societies, higher education, control of private schools and the training of teachers.

As early as 1770 Catherine was busy with plans for a system of compulsory education for all the males, instruction in which was to last eight months. The first act in carrying out this plan was the decree of 1775, establishing 'prikazy obstchestvennago prizreniia', or Boards of Public Assistance. Upon these boards devolved the duty of founding and maintaining schools in all towns and the more populous villages. There was one Board for each 'government', the number of which she had increased from the ten of Peter to fifty, but as only some 15000 roubles were granted to each Board, practical difficulties forbade the carrying out of the project. Catherine continued to work at her plan, corresponded with Grimm in Germany and invited him to supervise the education of the Empire. Upon his refusal, and following the advice of Joseph II of Austria, whose system of primary education she had decided to adopt, she invited a Serbian, Jankovicz, who was familiar with both the Russian language and the Austrian school system, to come to Russia and take charge. In 1782 a Board or Commission for the Establishment of Schools was created, with Jankovicz as one member, and with the task of providing schools, teachers and texts. In 1786 was promulgated the Statute relating to National Schools. In imitation of the Austrian system, two grades of schools (primary) were provided, glavnyia or major, in the main towns, and malyia or minor, in the villages and district towns. The major school had four classes, the three first each a year in length, the last, two years, whereas the minor school in district towns had but two classes, in villages, but one class. The curriculum extended from the three R's with religion and grammar in the lowest class of the village minor school to geometry, mechanics, architecture and physics in the fourth class of the major school. Control was in the hands of the Commission, but delegated, in practice, to each local prikaz or Board of the 1775 decree. But one of the essential details of the Austrian system, namely the establishment of provincial Normal schools was not carried out in Russia, with a consequent dearth of teachers, for the one

training school, established at St. Petersburg, could not supply the demand. The gaps were filled, as far as possible, with pupils of the schools and teachers from the ecclesiastical seminaries.

The success of these schools was not as great as was expected. In the first place, funds, both for teachers as well as for the maintenance of the schools themselves, were lacking, and while local contributions often sufficed to keep them open, when these failed, the schools closed. Moreover the nobility did not send their children to these schools, preferring private tutors or the exclusive schools for the upper classes. Thus it was mainly the schools established in large centers, where there were families of the trading, middle-class order, that the schools prospered. Lack of teachers, money and supervising genius were the main causes of the disappointing results of Catherine's plans.

For the education of girls, Catherine pursued quite a different plan. Up to this period, the education of girls had taken place at home or in convents; of schools there had been few or none except the private schools, a product of her reign, and attended mostly by the children of resident foreigners. In 1764 plans were sanctioned for a school, at Smolny Monastery, of two departments, one for the middle class pupils, the other for the girls of the nobility. This school admitting girls from six to eighteen, was composed of four grades, and had a different curriculum for the two different social classes; household management and domestic science being given to the middle class pupils in place of the more 'polite' subjects for the nobility, while at the same time they had in common a course of general studies, such as Russian and foreign languages, arithmetic, geography and history. French was the language of instruction up to 1783, when Russian, on the advice of the School Commission. was substituted. All this was an excellent means of breaking up the last lingering traces of an oriental attitude toward women, and the beginning of future educational schemes for them.

Other special institutions were opened during Catherine's reign; the Shliakhetnyi Korpus, a cadet school for the sons of gentlemen; the Corps of Pages, in 1785; the School of Mines, in 1774; and the 'Blagorodnyi Pansion', a secondary boarding school, in connection with Moscow University, in 1778. The Russian Academy of Letters, founded in 1783, has been mentioned, and had for its special duty the purification of the Russian language. Indeed, all through her reign, Catherine was constantly endeavoring to have Russian used wherever possible in teaching.

In spite of all these efforts to make the Russian educational system fit for the social needs of the time, it was quite evident, from

the fact that so many sought their education abroad ,that the schools were not satisfactory. Glasgow, Leipzig, Gottingen, Edinburgh, Oxford, Paris, Strassburg,—all contained Russian students; and in addition to this higher education abroad, there were the private schools which we have already mentioned, kept by foreigners, usually Frenchmen or Germans, who used their native language in their teaching. Foreign tutors employed in families were very numerous. These conditions led to state action in the matter.

In 1757 ineffectual efforts had been made to do away with the least desirable of the foreign tutors and teachers in Russia. But the first serious effort was that of Catherine in 1784, when the School Commission was directed thoroughly to investigate private schools and boarding establishments and carefully and thoroughly examine the owners and teachers. Those kept by foreigners satisfied the investigators better than those kept by Russians, only one of the former and all of the latter being closed. Those allowed to continue were placed under the control of the Commission and made to come up to requirements. By the Nakaz of the same date it became the duty of the Director of National (primary) Schools to supervise both the teaching and the premises of the private schools. Russian was made an obligatory subject, and half yearly examinations of the pupils in the presence of the Director were required, who had to submit, in his turn, a yearly report on the private schools under his supervision. The right to open further private schools was made subject to the permission of the Commission, who were first to be satisfied concerning curriculum, methods and teachers. This is the beginning of the later strict supervision of all educational activities proceding from other than state authority. While this action did much to set a standard for education, low as it was, it also prevented the experimentation in the nature of different types of education suited to the character of the different classes of Russian society, and permitted the universal rule of one type, imposed from above, and suited best to the ideas of the upper classes.

The period of Catherine is also noteworthy for an expression of a social demand for better education, coming from the middle class. This was the movement initiated by the journalist Novikov, Professor Schwartz of Moscow University, and the Freemason circle of Moscow. The whole movement was influenced by the philanthropic motive, and Novikov as early as 1775 had published and written in the interests of this movement. In 1777 he established two schools in St. Petersburg, which were maintained from the profits of his journal, 'Utrennii Svet',—Morning Light. In 1779 he

went to Moscow and leased the University Press from the authorities, and began the period of his greatest activity, publishing books, editing magazines, opening book-shops, translating from foreign sources, and gathering, together with Schwartz, who had been appointed Inspector of the university's pedagogical seminary, a group of students and workers, devoted to the propagating of their doctrines. One of his main ideas was to further the enlightenment of the Russian people by bringing in well-qualified teachers from abroad, and by also training native Russians to second them. He founded 'The Friendly Learned Society,' one of the objects of which was to raise funds for the education of Russians both abroad and at home. The historian, Karamzin, was thus educated. All this seems very innocent, but Catherine had become alarmed at the practical application of ideas to the reforms of government in France, and ordered the persecution of the Masons and the Learned Society, finally bringing about the imprisonment of Novikov for a term of fifteen years in the fortress of Schusselburg. This was but one more instance, in addition to the affair of the private schools, of the interference of the State in any activity concerning itself with education, and effectually set back the spirit of public service in education for many years.

Thus, all in all, the whole 18th century, in spite of efforts on the part of both Peter and Catherine for the lower and middle classes, had really bettered only the nobility to any very appreciable degree. The clergy and the upper classes of cultured men and women had prospered and progressed, but largely at the expense of the other portions of the whole society. The nobility and their class ideas had prevented the full fruition of a comprehensive system for the education of classes below them,—and one class, the serfs, had received no attention at all. Indeed, for several generations yet to come, until late in the 19th century, no effective scheme was to be found for them. It is estimated that out of the whole population of Russia at the end of the 18th century, only 1 in 800 was receiving any education.

Catherine's son, Paul, ruled from 1796 to 1801, with no very noteworthy results. He was a reactionary in education as in all other things, but reigned too short a time to accomplish very much. (Milioukov, 69, vol. II, pgs. 313-29; Tolstoy, 71, pgs. 28-100. Kniazkov and Serbov, pp 61-159; Darlington, pp. 21-35. For detailed study with plans and documents, see Betsky's contemporary account. Source 3, Introduction, chaps. II, III.)

CHAPTER V.

Alexander I. 1801-1825

Political and Economic Adjustments under Alexander.

With Alexander and the beginning of the 19th century, we are very near to our own time, and Russian society as well as the influences producing reform and reaction become infinitely more complex. Russia, under Alexander, is more than ever a part of Europe.

Paul had been a despot, but not an enlightened one as his mother had been, and only the shortness of his reign prevented him from undoing all that she had done, in her autocratic way, to further the affairs of Russia. So Paul comes to resemble the successors of Peter, in that he lies, as a bitter reactionary, between the nobler and greater Catherine and Alexander. Paul had pleased only the Church, had closed the printing presses, forbade the importation of books, recalled the students from foreign universities, and made the entrance of foreigners into Holy Russia almost impossible. So the accession of Alexander, who was thought to be a liberal, and more like his grandmother than his father, was hailed by all classes. Paul had bred social disturbances, too, and they have extended from high to low in rank, and in 1801, a court conspiracy, supposed to have sought merely his abdication, had resulted in his death.

But the influence of Catherine lived still in her grandson; she had separated him from his father and attended herself to his education, bringing him into contact with the people and thoughts that had influenced her. His tutor had been a Swiss revolutionary, Laharpe, and from him Alexander absorbed the French revolutionary tendencies and beliefs in free institutions which characterized the years of his reign up to 1812. But, again, like Catherine, Alexander was a theorist and a dreamer, and contact with the world of facts and reality brought him, as it had brought her, to a reactionary point of view. The turning point came in 1812.

His first act was to reverse the decrees of Paul concerning the press, the importation of books, the right to study abroad and the freedom of entrance of foreigners. In a manifesto published on the day of his accession, he promised to rule 'according to the laws and

spirit' of Catherine. But the spirit of Paul lived in him, too, though it was to take time and trouble to develop it. He gathered around him a circle of friends,—radicals, who constituted a 'secret council', and produced innumerable schemes of reform, all highly abstract and ignoring the actual conditions of the empire. But, beyond reorganizing the Council of State, the Senate and the Ministries, only one thing of even comparative importance was accomplished. In 1803, a law was promulgated, as a result of their deliberations, which permitted land-owners to liberate their serfs, on conditions fixed by mutual agreement, and sanctioned by the State. Naturally, this led to the freedom of very few of the serfs, but it marked the beginning of a new spirit, quite different from that of the time of Catherine, and one that was to gather increasing momentum with the coming years. The actual freeing of the serfs did not come, however, until 1861.

The intricacies of the wars with France (Napoleon), Sweden, the Caucasus, Turkey and Persia do not concern us here; the social changes resulting from the intercourse of his army with the rest of Europe will be traced in the following section. After the treaty of Tilsit, in 1807, Alexander again turned to internal questions and reform, and enlisted the aid of Michael Speransky, the son of a country priest, and a man of remarkable talent. Upon order, Speransky drew up a constitution granting to all ranks, even serfs, civil rights, and to all property owners, political rights. This implied freedom for the serfs, and the scheme carried with it a whole new set of political institutions, designed to render the power of the throne quite as authoritative as under the old system. So difficult was it for even a reformer of liberal ideas to think outside the limited ideas of autocracy. Little of the plan was actually adopted; the scheme is more a part of the history of Russian thought than of political reform, but it shows the tendency.

By 1812 the alliance of Napoleon and Alexander had reached the breaking point, and Napoleon invaded Russia, reaching Moscow, only to retreat in disorder and defeat. Alexander, following him, achieved by his successes a new political position in Europe. The Concert of Europe formed in 1815, to preserve Europe from revolutionary principles and to guarantee the status quo and the peace of the continent, was followed by the Holy Alliance of Alexander. The events of the years 1812-1815 had proven to be the turning point in his career, and the mysticism which had always been a part of his nature now seemed to rule it. According to the terms of the Alliance, Russia, Austria and Prussia bound themselves to 'base

their conduct in the administration of their respective states . . . on no other rules than the principles of the Christian religion . . . '

But the military success of Russia was paid for by the improvishment of the country. Money had to be borrowed from abroad. Industry and manufacturing had developed only slowly, and the superior value of free as opposed to serf labor was not yet fully or universally believed. This led to questions of tariff and the best way of aiding the factories as producers of wealth, and this in turn to the question of labor and the serfs. In 1816-1819 the peasants of the Baltic provinces received their personal freedom, but remained in economic dependency on their former owners, who retained the possession of the land. In 1818 Alexander's minister Arakcheev was ordered to prepare a scheme for the gradual emancipation of the serfs, which 'would not be burdensome for the landowners, or likely to need the use of compulsion'. Alexander died unexpectedly, in 1825, just after ordering an inquiry into the secret societies which had been for some time agitating for reform. These will be considered in the next section. (Kornilov, vol. I, chaps., IV-XIII. Mavor, vol. I, Book II, chap. VII., Book III, chap. III. Short summary in Beazley, Book III, chap I. Zilliacus, chap. I. Kovalevsky, 101, chap. VI.)

The Social Unrest and the Secret Societies.

The beginning of the social unrest which has characterized Russia with increasing power and extent with the evolution of the country, began, in a very real sense, with Peter the Great. Social unrest had existed before him, but the type of disturbance and dissatisfaction which is at issue here is the gradually growing discontent with the autocracy, and the efforts made to overthrow it and put in its place a representative form of government. Peter literally flung his country into the current of European and Western civilization, and it was not to be expected that she would absorb only those elements of that civilization which were pleasing to the State. With the acquisition of technique and outward culture, with the learning of the arts and sciences of trade and industry, the foundations were laid of political and social upheaval which, though they took long to mature, none the less were prolific of consequences in the long run of a century. Nor did the playing with radical ideas and the promising of freedom and reform, which was so characteristic of such rulers as Catherine and Alexander I, have any effect in stemming the tide,—rather it heaped up a greater mass of dissatisfaction which, when it found opportunity for action, cared less for

consequences than might have been the case with a movement that had had a history of partial success behind it.

It was the struggle against Napoleon that gave the opportunity and the inspiration for collective activity against the system of autocracy. Alexander's troops, both officers and men, in their invasion of Germany and France, and in their association with their allies, absorbed a new spirit and a new inspiration. Europe was full of democratic ideas and democratic action which not even the despotism of Napoleon had been able to destroy. It was seen that the Germans owed much of their freedom, in spite of an oppressive government, to the Tugendbund and the leaders of that movement, and in France they found universal evidence of the powers and abilities of a nation imbued with the traditions of the Revolution, and finally the Carbonari of Italy appealed to the more violent and impatient among the Russian thinkers who were dreaming and planning for a Russian republic.

After the signing of peace and the return of the troops, conspiracy became prevalent, and Alexander's theoretical liberalism only encouraged it; moreover, at this very period, Alexander was turning his back upon his earlier beliefs and plans and falling more and more under the influence of the reactionary minister, Arakcheev, and driving still further the spirit of rebellion which judicious reforms might have satisfied before it became definitely organized and committed to action. The organizations took the forms of clubs, masonic orders, literary and educational circles and, finally, purely political organizations. Muraviev, Orlov, N. Turgeniev, are names connected with the early movement; the 'Circle of the Lovers of Nature' developed into the 'Society of United Slavs', and finally merged with the 'Southern Society', the most significant of the early secret societies. In 1816 the 'Union of Salvation' or of 'The Faithful and True Sons of the Fatherland', was founded by Muraviev, a colonel in the army, and organized by Pestel, an adjutant. The latter was in favor of the more radical constitutions and methods of the Italian secret societies, the former for legal co-operation with the Government for gradual amelioration of conditions, basing his ideas on the constitution of the Tugendbund. The Society finally accepted the more moderate platform, and named itself, in 1818, 'The Union of Welfare'. The propaganda of this organization was directed in four ways: first, philanthropic, for the relief of peasant conditions; second, educational, for the army, the main agent in this matter using Lancasterian schools among the regiments and the people of the section they were quartered in; third, the betterment of justice, and

the working out of new conceptions for courts; fourth, economic, for improving the financial affairs of the nation.

By 1819 the membership of the Welfare association had grown to some 200, and with increased dissatisfaction with the government, the policy of the order seemed, to many, far too conservative. In addition to this internal discord, a serious mutiny among some of the troops led to a decision for disbanding. In 1821 the society was disbanded, to reform, however, almost immediately, in two new groups,—'The Northern Society', moderate, under Muraviev, and 'The Southern Society', radical, under Pestel. Pestel preached not only regicide, but the necessity of the annihilation of the entire royal family, while Muraviev was working for a limited monarchy.

Plans, on the part of Pestel's organization, had proceded so far as the perfecting of a scheme to make the Emperor prisoner, during his presence at the review of the Southern Army, to seize the fortified towns of the district, and then to communicate with the Northern section, who in turn would arrest the most important and dangerous members of the government there. But the unexpected death of Alexander upset the plot, which might well, in view of the circumstances, and the lack of secret police, have been successful. In the uncertainty of the moment, with a new candidate for the throne, Nicholas, to be considered, their plans went astray, and after open insurrection and fighting, the entire conspiracy was broken up, and the leaders, including Pestel and Muraviev, hanged. Such was the 'December' uprising, and the 'Dekabrists'. (Kornilov, vol. I, chaps. XII, XIII. Zilliacus, chap. I. Kovalevsky, 101, chap. VI. Mavor, vol. I, Book II, chap. VIII. Milioukov, 103, chap. V to pg. 260, and chap. IV, pp. 160-180. Ivanov-Razumnik, vol. I, chap III.)

Educational Construction and Reaction under Alexander.

In educational as in other matters, Alexander showed both a constructive and a later reactionary spirit, the year 1812 being the approximate date of division. The early period was influenced by the ideas and feelings which he had received in his early training, from grandmother and tutor, the later years by the facts of the world around him, when he had found that his theories were of little use and only too often misunderstood and carried to extremes beyond his intentions. Religious mysticism, too, had much to do with his reaction in the second half of his reign.

It is interesting to note the social construction of Russia at the beginning of the 19th century. The peasantry constituted some 94.5%, the lower ranks of the urban population some 2.5%, the

merchants less than 1%, the parish clergy some 1%, finally the nobles and officials, from 1.25 to 1.5%. The total population was at that time about 36,000,000, composed of various races (see Mavor, vol. I, appendix II.) under domination of the Russians. (For further details on these statistics, see Kornilov, vol. 1, chap. II.) The division of this total mass of population into 'intelligentzia' and 'people', which had begun in Peter's day, and which had not been the condition in the old primitive Russia, still existed at the beginning of the 19th century. Peter it will be remembered, had paid some attention to the education of the masses, but his schools had, none the less, created the first generation of intelligentzia; Catherine had also turned her attention to schools for all, but the intelligentzia had prospered most.

Alexander's educational problem, as he saw it, was to create an adequate and permanent national system of schools, which should at once avoid the superficialities of Catherine and the too materialistic bias of Peter, and provide opportunities for all classes of society. His chief advisors were his old tutor, La Harpe, and a group of nobles, Novosiltsev, Count Zavagovsky and Prince Czartorysky, together with Speransky, Stroganov and a number of others. In 1802, Alexander abolished the School Commission and created in its place the 'Ministerstvo Narodnago Prosvestcheniia', or Ministry of Public Enlightenment. The first minister to occupy the post was Count Zavadovsky, a mere figurehead, whose work was really done by M. N. Muraviev, an early tutor of the Tsar. The supervision of this new ministry extended over all educational institutions, public libraries, museums, public and private printing presses, the censorship of printed matter, with the exception of the schools under control of the military and naval authorities, the Cadet Corps, the schools of the Holy Synod and the Girls' schools under the protection of the Empress Marie. As a consequence, budgets, reports and investigations have never been under one supreme authority. From 1803-1804 regulations and statutes reorganized the Empire into educational districts and governments, with a Curator (Popechitel) for each of the six districts in full charge of affairs, but residing at St. Petersburg. Three more Universities were founded and three others projected, their constitutions being framed on German models.

The universities were considered of paramount importance for two reasons: in the first place, it had been seen that one of the main difficulties in the way of the creation of a good system of schools in Russia had been the lack of well qualified teachers, and the 'preliminary rules' for the universities required that each should have a training school attached, where students should be maintained at the

expense of the state, upon binding themselves to serve for six years after graduation; in the second place, a part of the actual administration of the schools was to be in their hands.

In addition to the founding of the new universities, a new complete system of secondary and primary schools, three grades, were established; each chief provincial town was to have at least one gymnasium, each district town at least one district school, and each parish, if possible, one parish school. The surviving major and minor schools of Catherine were reorganized and assimilated. The Council of each district, which governed the universities, also controlled the primary and secondary schools through an annually appointed Schools Committee of six professors under the leadership of the rector of the university.

The intimate connection between the educational plans of Alexander and the general political situation is shown clearly in a report of Speransky in 1803. "In the present state of affairs we do not find the first elements necessary for the establishment of a constitutional order. How it is possible to separate the legislative power (from the executive) without an independent institution for its maintenance? How introduce such an institution . . . in the absence of education? How develop a public opinion, create a national spirit without freedom of the press? How allow or introduce freedom of the press in the absence of education? . . . How can the laws be observed without education . . . ?" (Quoted by Kornilov, vol. I, pps. 109-110.) Yet either to abolish serfdom in the absence of education, or to spread education under the conditions of serfdom, seemed dangerous, if not impossible. Slow and cautious efforts for gradual amelioration seemed the only method to escape from this dilemma. But Alexander and his co-workers were perhaps the first to see the real problem, for Peter had forced his ideas on an unwilling society, and Catherine had seen only a part of the difficulties involved.

The same effort to prepare the ground for social and political advancement is apparent in the curriculum of the gymnasium where, in addition to science, mathematics, Latin and modern languages, there were given courses in logic, aesthetics, psychology, ethics, law and jurisprudence and political economy. It was an effort to give a complete general education to those who could not go as far as the University. This aim is stated both in the Statutes, and by Count Razumovsky, the Minister of Education in 1812, in a letter to Rommel,—"Je crois devoir vous mettre au fait des vues, que l'on a suivies dans le plan d'enseignement actuel. . . . tout le monde ne pouvant pas avoir l'occasion de continuer les études aux universités,

et les gymnases recevant des enfants de tous le états, gentilshommes négociants, artisans et autres, ceux d'entre eux,—qui sont obligés d'achever leurs études aux gymnases, ou qui selon leur état n'ont pas besoin d'asquérir des connaissances plus étendues, ont l'occasion d'y acquérir des notions des objects surmentionnés, autant qu'ils conviennent à chaque état. . . ." (Quoted, Darlington, p. 42.) But while motivated by the highest ideals, Alexander's plans, like those of his predecessors, were not fully in accordance with the actual conditions. It will be remembered that some 94.5% of the inhabitants of Russia at the beginning of the 19th century were peasants. There was also too much imitation of foreign models, especially in the case of the universities.

Difficulties began to arise in two directions: first, the self government of the universities clashed with the rest of the autocratic system, and many of the better and more valuable professors resigned when it became apparent that the self government was only a theory; second, many of the professors were foreigners, still, and lectured in Latin, which was not well understood for the good and sufficient reason that the training of students in this language, in view of lack of previous opportunities to learn it, was very poor. Students were often admitted to the university with no knowledge of Latin, merely upon their pledge to acquire the language during their residence. It can be readily seen that advanced subjects of instruction, presented in an unfamiliar or unknown language were of little value to the students, or Russian society, as a whole. One further difficulty existed in the class feeling of the nobility who disdained to send their sons to institutions attended by members of the lower classes, and in their desire to hasten the entrance of their sons into the public service which a long term of schooling delayed. But the ukaz of 1809 made a university diploma or its equivalent a necessary condition for entrance into public service and, to meet the class feeling, dormitories were established in connection with the universities for the use of the sons of the upper classes.

Nor was the condition of the gymnasia, the district schools and the parish schools any better; many of the same difficulties existed with the addition of those peculiar to each type. The gymnasia suffered from the same class feeling, competition with private schools and special schools for the nobility, the length of their course, the lack of good teachers, the character of the curriculum, which, with the best theoretical motives, crowded too much into the course for practical assimilation and use,—a fact which was the basis of the criticism of the next Tsar. The district schools suffered from the too early withdrawal of the students, poor teachers, and lack of

funds. The parish schools were in the worst condition; no public funds were available, and the cost of their upkeep was born by the generosity of individuals, church and lay, and the local authorities, the nobility as a class doing little or nothing. In spite of all that could be done, the parish schools of the Act of 1804 practically disappeared in the course of a few years.

By 1810 it was quite evident that the educational reforms and administration of 1803-4 had failed. The group of reformers who had guided the early plans of Alexander gave way to Speransky, a man of intellect and ability, but cautious, and with a belief that all things should progress together, and holding that education, without freedom, or vice versa, would be destructive to the country. In 1811, private schools were subjected to still further discipline and required to pay a tax of 5% on all receipts from fees. But nothing was done, in a large way, until the appointment of Count Uvarov, in 1810, as Curator of the St. Petersburg District, a scholar who, both in this capacity and later as Minister of Education, has had very great effect on the progress of education in Russia. In 1811 he presented a series of proposals to the Minister of Public Instruction, which involved a readjustment of the aims of the schools, bringing them more nearly in accord with the real conditions of the society of the time, though they involved, perhaps, a theoretical retrogression. He advocated the study of such subjects in the gymnasia as were appropriate to the age and conditions of the students, leaving the advanced legal and philosophical studies for the university. This meant concentration on religion, the mother tongue, history, geography, mathematics, literature, grammar and the classical languages. "The general aim of the gymnasia is to prepare its pupils for the . . . universities." The classics were introduced by Uvarov both because he was a student of the subject, and because, as stated above, the gymnasia had failed, heretofore, to provide the necessary knowledge of Latin to enable students at the universities to follow the lecturers who spoke in that language. Thus was introduced the study of the classics, destined to prove a subject of constant debate for later educators. So successful was the scheme of Uvarov, and so wide was the agreement among educators that it suited the conditions of the time that, in 1819, it was adopted for all the districts of Russia.

The burning of Moscow occurred in 1812, and the year marks a turning point not only in the history of external and foreign affairs in Russia, but in its internal affairs as well. International matters rather than internal welfare now occupied Alexander's attention, and the general reaction of the ruling classes of Europe and

their fear of liberal ideas dominated him. Moreover, the result on the people of Russia, as a whole, was to bring about a revulsion against foreign ideas and foreign customs, manifesting itself particularly in a new feeling against foreign teachers. Russian thought, as a whole, became more conservative, more narrowly national, as a reaction against the foreign invader, the Anti-Christ, who had transgressed against Holy Russia. All classes shared in this attitude, and the really free minds became less numerous and less able to work out their ideas. Only among the secret societies discussed in the last section was there freedom of thought, and action directed to a freeing of the country. Religion became, both with Tsar and with the nobles a new instrument for the preservation of the status quo,—Alexander, it is said, was wont to open the New Testament, at random, for guidance on the questions of the day. The English Bible Society, founded a branch in Russia in 1812; the Jesuits, too, played a part in the affairs of the country at this time.

The spirit of reaction first showed itself in the field of education. Magnitsky, a member of the Council of Education, wrote, at this period, "The whole mischief which has been observed in our universities has been caused by the education, the books and the men we have imported from the German universities. There the infection of belief and revolutionary principles which started in England and gained additional strength in pre-revolutionary France has been erected into a . . . system." (Quoted, Darlington, pg. 55.) The religious motive in education appeared in the person of Prince A. N. Golitzin, who became head of the Bible Society soon after its foundation, and who was also Super-Procurator of the Holy Synod, a boyhood friend of the Tsar, in his youth a free thinker, but who had become a mystic in his later life. Branches of the Society were established throughout the country and soon brought anew to the attention of the authorities the need for elementary schools, for if the society was to be sincere in its attempts to popularize the Bible, of necessity it had to provide the means for learning to read it. In 1815, Golitzin became Minister of Education and in 1817 the Ministry of Public Instruction was combined with the Holy Synod. The Act of 1817 read, in part, "Desiring to have Christian piety as the permanent basis of true enlightenment, we have deemed it useful to unite the work of education with the work of all creeds into one department under the name of the Ministry of Public Worship and Popular Education". (Quoted, Kornilov, vol. I, pg. 189.) An example of the lengths to which this tendency went in the hands of some of the reactionaries, is the University of Kazan, to which Magnitsky was sent by Golitzin, in 1819, to make a special inquiry. Mag-

nitsky wished to close the institution entirely but, opposed by Uvarov and the Tsar in this, he completely reorganized it; eleven professors were dismissed, a special director for morals appointed, and the curriculum so changed as practically to make it that of a theological seminary. In the instructions issued to the director of morals, we read, "The aim of the Government in the education of students is the training up of faithful sons of the Orthodox Church, loyal subjects of the Tsar, good and useful servants of the fatherland. . . The soul of education and the supreme virtue of a citizen is humility; and therefore is the most important virtue in a student.. . . Students who distinguished themselves in the Christian virtues were to be preferred before all others . . . " (Quoted, Darlington, p. 58.) The classics, science and history must agree with the teachings of scripture. Disobedient students were confined in cells and forced to wear cards with the inscription, 'sinner' upon them. The schools of the Jesuits numbered six in 1804, and had a great vogue with the upper classes, and owing to the liberality of the early years of the reign of Alexander were not disturbed. By 1812 the power of the Jesuits had increased sufficiently to procure the elevation of their college at Polotsk to a status equal to that of the Russian Universities, and they were in a fair way to continuing their hitherto successful propaganda, when suspicion of political disaffection and the general reaction against foreign influences in Russia caused their expulsion.

The results of Magnitsky's 'inquiry' at Kazan were extreme, but the same tendency was followed elsewhere, and the universities accordingly became even less capable of directing the course of education and culture in Russia. Popular elementary education made little progress. Under Golitzin, an attempt was made to introduce the system of Lancaster, and in 1813, Dr. Joseph Hammel was sent to England, officially, to study the system. In 1814 the Tsar, himself, while in London, met William Allen, and became interested in his plans. During the next few years several Russian students were sent to Paris and to Borough Road to be trained sufficiently well to establish the system in their country on their return. In 1818-1819 Allen came to Russia and had several interviews with the Tsar and with other members of the Bureaucracy. Yet all that came of it were some few schools in the larger towns, some schools formed on that system on the estates of a few nobles of liberal tendencies, and Lancasterian schools for soldiers. It was proposed to replace all district and parish schools in Kazan district by those of the new type, but the proposal was never carried out.

Golitzin was succeeded by Admiral Shishkov in 1824, an orthodox Russian, whose general attitude was that which later came to be called "Slavophilism." His views on education (quoted by Darlington, pg. 63) set forth the main ideas which were to control the policies of the Ministry for the next era. "Learning without faith and without morality does not constitute national happiness. Learning is as hurtful in a bad man as it is useful in a good man. . . . To teach the whole people, or a disproportionate number of them, to read and write would do more harm than good. To instruct a farmer's son in rhetoric would be to make of him a bad and worthless, if not a positively dangerous citizen. But instruction in the rules of conduct and in Christian virtues and good morals is necessary to everybody . . . ". (Kniazkov and Serbov, pgs. 161-198. Milioukov, 69, vol. II, pgs. 329-346; Kornilov, vol. I, pgs. 55-57, 68-70, 89, 98-101, 111-113, 145, 172, 187-193, 200; Darlington, pgs. 36-63; Source 3, Part I, chaps. I-VIII; Part II, chaps. I-VII; Part III, chap. II.)

CHAPTER VI.

Nicholas I, 1825-1855

Autocracy as a Principle; and the Results.

Nicholas, the third son of Paul, had been brought up and educated quite differently from his eldest brother, Alexander. He had been educated, under the direction of his mother, by a strict disciplinarian, General Lamsdorf, and a French emigré, Du-Pouge, and all his instruction was intended to produce a hatred for the revolutionary and liberal ideas of Europe. In 1816, at the age of twenty, he toured through Russia, Western Europe and England. He came back from this hurried, superficial trip with an intensified hatred and disgust for popular government, and devoted himself to restoring discipline in the brigade of the Guards of which he was appointed commander. In 1817 he became a General and almost to the end of his reign he was, characteristically, interested in the question of 'discipline' in the army. In 1817 he married the Prussian Princess Charlotte.

The first business that occupied Nicholas was that of the December Uprising, to which he devoted practically all his time and energy for six months, endeavoring both to punish all those concerned in it, and also to discover what just causes, if any, had led to the rebellion. The trials themselves were parodies of justice and the incarnation of autocratic despotism, but Nicholas clearly saw, beneath all the activity of the revolutionists, signs of real and justified dissatisfaction and discontent. By his orders, a report was drawn up by an investigation committee, based on the testimony and written statements of the conspirators which Borovkov, the secretary, summarized, in part, as follows, "It is necessary to grant clear, positive laws; to establish justice through fastest court proceedings; to elevate the moral education of the clergy; . . . ; to resurrect commerce and industry . . . ; to direct education in accordance with the status of the pupils; to improve the condition of the farmers; to abolish the humiliating sale of men . . . ". (Quoted, Kornilov, vol. I, pg. 235.) Nicholas did not rate the Decembrists as merely a body of youthful dreamers, he saw clearly that they had included men of experience and real ability, and he

planned to use their ideas and their statements in governing his country.

In 1826, Nicholas issued his Coronation Manifesto, and his principles became apparent. "Not by impertinent, destructive dreams (from below), but from above, are gradually perfected the statutes of the land, are corrected the faults, are rectified the abuses." (Quoted, Kornilov, vol. I, pg. 236.) This was an expression of the advice of Karamzin, the historian, who was the predominant influence in the early years of Nicholas' reign, and who was a firm believer in the necessity of autocracy for Russia as the only condition under which reforms could be brought about. Speransky, who had now outgrown his early idealism, was another trusted adviser, and, later, Uvarov, with his narrow educational creed of 'Orthodoxy, Autocracy and Nationalism'. Under the influence of such men as these the principle of Autocracy developed and grew year by year, becoming, finally pure unenlightened despotism. It was not that Nicholas and his advisers were opposed to reform, but the principles through which they wished to bring it about, 'from above', contained in themselves the ground of failure.

The thirty year reign of Nicholas is marked by two points of division, the first of which came in 1831, the time of the July revolution in France, and the Polish insurrection. The six years up to this period had seen the codification of the laws, endless projects for reform that led to nothing, the creation of the 'Third Section', or secret police, and some educational legislation. But the banishment of his friend, Charles X, from France and the fall of his sister, the Queen of the Netherlands, followed by the insurrection of 1831-2 in Poland led to the final abandonment of whatever ideas of liberality had still persisted. The rest of his reign is characterized by constant efforts to subdue all tendencies toward revolutionary ideas both at home and abroad, and the Tsar sought a close alliance with Prussia and Austria to further this, basing his internal program on the doctrine of Uvarov,—'Orthodoxy, Autocracy and Nationalism.'

The problem of serfdom and the condition of the serfs was becoming the most important of all the questions which troubled the country. The serf population was rapidly increasing, estates could not pay for the mode of life which had been adopted by the nobility, (some 50% of them had been mortgaged by 1843), and the reign of Nicholas saw nearly six hundred separate revolts of serfs in one or another part of the country, half of which had to be suppressed with the aid of troops. In view of all this, the idea of the liberation of the serfs was more frequently and more seriously considered than heretofore, but the consensus of opinion among the nobles was that,

while the serfs should be liberated, the ownership of the lands should remain with the nobility. In 1842 a law was published which permitted the owners to liberate serfs, but with the additional condition, not in the similar law of 1803, that the peasants be allowed to retain what land they had cultivated. With compromises of this sort the question was carried along to the next reign.

Throughout the beginning of the reign of Nicholas, industry was developing. The number of factories increased, new industries, particularly cotton, grew up, and free labor came more into use. Estate-factories, worked by serf labor, diminished in number, and kustarny, or home labor increased, competing, often quite successfully, with the factories. The government protected this home labor, as it aided the nobility in making a success of their estates and helped postpone the day of final settlement of the question of the freeing of the serfs. But nothing in the nature of an industrial revolution took place, or was to be seen in the immediate future.

With the French revolution of 1848 and the restoration of a republic, Nicholas became, if possible, even more despotic and reactionary, the remaining years to 1855 constituting the third period of his reign. His Manifesto of that year was full of threats against the Western 'rebels', and he seems to have taken yet more seriously upon himself the role of 'protector of monarchies', and in particular, absolutism. He aided Austria, with troops, to put down the Hungarian revolt, and demanded from Friedrich Wilhelm more rigorous treatment of the revolutionary elements in his kingdom, particularly in Prussian Poland. This renewed attitude of reaction was, as usual, immediately visible in the conduct of internal affairs, increased severity of censorship, increased vigilance in the observation of those who were 'suspect', still further limitation of education and the imposition of religious motives and studies, prohibition against traveling abroad, without personal permission of the Tsar, which was very rarely given, and the addition to the Civil Service Statute, giving the authorities the right to dismiss, without trial or explanation, any official considered 'unworthy'.

Yet beneath it all the breakdown of Autocracy as a principle was being prepared. The iron discipline and severity in the army had made it a much admired and respected instrument of the Tsar; at home and in Europe it was feared; when all else was criticised, even the enemies of the government felt sincerely that, as an army, the Russian troops and officers were eminently worthy of praise and admiration. In 1853 the war with Turkey began, the fateful Crimean War, and the Russian machine, apart from the individual bravery

of officers and men, was shown to be criminally incompetent and hopelessly dishonest. The despised Turks fought successfully against the Russians, Russian ships had to be sunk in the harbor of Sevastopol, the fortress itself capitulated. Stores had been plundered, or never sent to the front, ammunition was wrong or missing, equipment was wanting, resources were exhausted,—the whole system proved to be a failure.

Nicholas died in 1855, a year before the end of the War, but he lived to see the beginning of the popular and universal movement against his principles of reform and control 'from above'. It had become quite evident that nothing but an absolutely fundamental change in the whole policy of Tsardom could right the wrongs and delivery the country. Submission to the power of the throne vanished with this clear proof of its incompetence; writers in prose and verse vied with one another in picturing the discontent of the country, and neither police nor censor could prevent the circulation of the revolutionary propaganda. "Stand forth, O Tsar", one of them reads, "before the judgment seat of God and history. Thou hast mercilessly trodden the truth under foot, thou hast oppressed liberty, and hast been the slave of thy own passions. . . . Sue for pardon, and seek counsel. Throw thyself into the arms of the People. There is no other salvation for thee." (Quoted, Zilliacus, pg. 33.) With such a condition within and without the country, even the author of it would, of necessity, have had to modify his policies or render his country up to anarchy; his son and heir was left with the problem to solve. (Kornilov, vol I, chaps. XIV-XVII, XIX. Kovalevsky, 101, chap. VII to pg. 192. Mavor, vol I, Book II, chap. IX, X; vol. II, Book IV, chaps. I, III; Beazley, Book III, chap. II; Zilliacus, chap. II.)

Autocracy and Society.

The immediate effect of the suppression of the Decembrist uprising was the weakening of the power of the revolutionary circles. Those who were not either exiled or sentenced to death were, for the time being, silenced and without leaders. In the middle of the 19th century, Herzen wrote, in memory of the earlier period, "Thirty years ago, Russia of the future existed exclusively among a few boys who had just passed their childhood . . . This new life vegetated as grass . . . on the lips of a crater which has not yet cooled." (Kornilov, vol. I, pg. 283.) But as this generation grew up it became split into two sections,—those who followed the current which had begun in the days of Catherine, the ideas of the

French Revolution, the inspiration of the Dekabrists, and those who followed the new stream, coming from Germany, the stream of German idealism, post-Kantian philosophy, Hegelianism, which had entered Russia during the first quarter of the century. By 1825 the adherents of the newer ideology were in the majority, and the university students of that period found that Hegel and Schelling formed the basis of the teachings of many of the better professors of science, history and literature. At Moscow University was a small group of men, destined to play an immense part in the intellectual development of Russia,—Belinsky, Aksakov, Bakunin, Granovsky and Herzen. By the beginning of the 'forties two tendencies in radical thought were apparent,—Westerners, such as Herzen, Bakunin and Belinsky, and the idealistic Slavophils, such as Aksakov and Kireievsky, and it was unfortunately true, so far as progress against a common enemy was concerned, that they often hindered and quarreled with each other.

Against all such activity as this Nicholas was, from the very beginning of his reign, most vigilant. In addition to the ordinary censor, he established, as early as 1828, three others, and official circulars were frequently issued which forbade all mention of this or that occurrence or episode at home or abroad,—'for official reasons'. Foreign books and newspapers were forbidden entrance, unless of the most innocent character, that is, not dealing, in the slightest degree with politics. But in spite of the most excessive precautions, the spread of ideas continued both by word of mouth, in the numerous secret meetings, and through the publications, openly issued in Russia, in which forbidden thoughts were carefully concealed to all but the initiate, in chosen words and phrases, and through other publications such as Herzen's 'Kolokol' (The Bell), published monthly in London, and smuggled into Russia and there secretly circulated. That this secrecy on the part of writers against the existing state of affairs was justified, is evident from the treatment given to one thinker who did speak out and publish his opinion on matters theoretically wholely within the domain of the Tsar,—Chaadaiev. In 1836, Chaadaiev published in the "Telescope," a philosophical magazine edited by Professor Nadezhdin of Moscow University, a "Philosophical Letter". In it he not so much criticised Russian affairs, as voiced a hopeless despair at the past, the present and the future of Russia,—"We live in indifference to all, in a narrow horizon, with no past or future . . . " For Russia to become like other nations she must "begin over again the whole education of man . . . " (Quoted, Kornilov, vol I, pg. 287.) The magazine was suppressed, the editor exiled, the censor who per-

mitted the letter to be passed was dismissed, and Chaadaiev was officially declared insane, and reports of his condition, at stated intervals, ordered to be delivered to the Tsar. With the events of 1848, the repression of the police became, if possible, even more stringent, and a small circle of literary men and officers, who met simply to discuss literature were sentenced to death,—among them the young Dostoevsky. The government was simply striking in all directions, blindly and in terror of what it could not find.

It is little wonder, then, that the defeats of the Crimean War met with rejoicing on the part even of staunch patriots. Sevastopol fell that "God might reveal all the rottenness of the system of government, all the results of the principle of 'throttle'." (Aksakov); "We were convinced that defeat would be more endurable and more beneficial for Russia than the conditions under which we were living," (Koshelev); "We have fallen, not before the forces of the Western Alliance, but as a result of our own internal weakness," (Samarin). Quoted, Beazley, pgs. 423-424; Kornilov, vol. I, chaps. XVIII, XIX. Zilliacus, chap. II. Mavor, vol. I, Book II, chaps. IX, X; Ivanov-Razumnik, vol. I, chaps. VI-VIII.)

Autocracy, and Education as 'Discipline'.

The lesson of December, 1825, was apparently never forgotten by Nicholas, but it would seem that his efforts, not only in the general affairs of his country, but in education, were directed rather to reproduce such occurrences than to remove the causes. What little promise there had been in the theories of Catherine and the early liberality of Alexander for the eventual development of a universal, free and approximately democratic system of education was completely thwarted, for a long time to come, by the new ideas and methods of Nicholas.

Some six months after his accession he appointed Shishkov as president of a committee for the organization of educational institutions, whose task was the introduction of uniformity of administration and methods, and a vigilant supervision of texts and notebooks. He was particularly adverse to the educational system of 1804, condemning it as too difuse, too superficial, and ordering the creation of a curriculum that would be concentrated, that would aim at character as well as knowledge,—and in particular, of the kind he considered supreme, an obedient, loyal, 'disciplined', conservative character. Another of his personal demands was the abolishing of the continuity between the various steps in the school system, whereby those of the lower classes had been enabled to advance to the very

summit of the system. Believing that moral and social harm was done by educating the children of all ranks in the same schools, he ordered that, while children of the peasants and lower classes might be admitted to parish and district schools, the gymnasia and universities and other institutions of higher rank must be reserved exclusively for those of 'svobodnyia sostoianniia', or 'free orders of society'. The investigations of the Committee extended over a period of two and a half years, and their findings were promulgated in the Statutes and Regulations of 1828-1835, the main points of which may be summarized as follows: In the first place, the instructions of the Emperor concerning the right of entry into educational institutions, was embodied in the regulations, and gymnasia and universities were definitely reserved to the nobility and the officials, the parish and district schools being particularly intended for the education of others,—the latter, "to afford the children of tradesmen, artisans, and other town-dwellers,. . . such instruction as would be most useful to them, having regard to their manner of life and their special needs and customs." As the Committee expressed it, " . . . a public system of education should aim at securing for the children of each class such a training as would fit them to be useful and contented in that rank of life to which it had pleased a Most High Providence to call them at their birth, . . . " (Quoted, Darlington, pg. 67.) In the second place, the class and political aims of education at this period were fully developed, and the formula of Uvarov, Minister from 1833-1849, so literally accepted and followed that the schools under its domination became a mere department of internal affairs. In an investigation of the University of Moscow, before he became Minister, Uvarov wrote, "I firmly believe we shall be able to avoid these mistakes, (i. e., the pernicious influence of Western European ideas), and shall succeed in gradually capturing the minds of the youth and bringing them to that point where there must merge together—a regulated, fundamental education with a deep conviction and warm belief in the true-Russian conservative principles of Orthodoxy, Autocracy, and Nationalism, which present the last anchor of our salvation and the surest pledge of the strength and majesty of our country", and advocated "the multiplication of mental dikes for the struggle with destructive notions". He declared when Minister that he wished to prolong Russia's youth and would die happy if he could hold back the development of the country for about half a century. (Quoted, Kornilov, vol. I, pgs. 280-281.) This effort of the State to control education in its own interests led, naturally to a stricter control over private educational

institutions, and the limitation of the right to travel or to be educated abroad.

The universities, too, came under new regulations, embodied in the Statute of 1835, by Uvarov. The Dekabrist Uprising had resulted in a degeneration of the universities, for many of the professors and other university officials had been implicated in the rebellion, and the temporary measures to relieve the situation, even the sending of students to study abroad and so meet the requirements for the various chairs in the universities, had not resulted in entire success. To prevent the universities from again becoming centers of revolutionary disturbances, their autonomy was taken away and they were deprived of all control over other parts of the educational system.

The most severe expression, however, of autocracy in education came after the events of 1848, when university students were required to wear a special uniform and follow certain regulations when appearing in public, courses in European public law, comparative constitutional law, social statistics, were abolished, and philosophy and psychology might be taught only by orthodox (Greek) professors of theology and strictly in accordance with the creed of the church. Professors were required to submit to the government the actual lectures which they intended to give as well as the lists for further reading on the part of students, and deans were required to report the smallest deviations from the approved copies of lectures. Tuition fees were raised, inspectors of morals appointed for each school, text-books limited, the gymnasium course extended to seven and that of the district schools to five years, all with the intention of making the task of obtaining an education and, in case of beginning it the attainment of 'chin', as difficult as possible for all those not possessed of wealth and rank. One further effort to strengthen the bond between the members of the nobility and to intensify the distinctions of class was the introduction of boarding houses for the gymnasia, to which access was denied to all but those students whose parents belonged to the eighth or higher ranks of the nobility. This was also a part of the general effort to make the state institutions in every respect as attractive as the better private boarding schools, and in 1833 the establishment of new private boarding schools in either Moscow or St. Petersburg was forbidden, and the right to open such, anywhere, granted only to Russian subjects if, in addition, it could be shown that the facilities offered by the state in the place in question were inadequate. Later regulations were still stricter.

In March, 1849, six months before he resigned, Uvarov reversed his policy in the question of the classics for the secondary

schools. It seemed to the government at this time, in contrast to earlier and also later opinions, that the study of the classics was dangerous, and tended to undermine the loyalty to the doctrines of Orthodoxy, Autocracy and Nationalism. This, of course, was a reflection of the events of 1848, and the current official view-point was that the study of the classics "encouraged republican sentiments." The course of the gymnasium was divided into two parts,—a "general," and a "special," the latter commencing with the fourth class, and permitting specialization in law, mathematics or the classics, according to the future career of the student. Latin was required only for entrance to the universities, and Greek only for the pursuit of philology. Naturally this disorganized the whole secondary system, and the reasoning behind it should be compared with that of the period of the "restoration" of the classics in 1871.

The general attitude of autocracy in education was reflected in the treatment of the question of primary education, particularly in the rural districts. Practically nothing was done by the Ministry of Public Enlightenment, and the one movement which stands out in the whole of Nicholas' reign is that of the Ministry of Imperial Domains, which began to establish, after 1830, village schools for peasants with the purpose of training clerks for the work of rural administration. By 1853 there were some 3,000 of these schools with an average of 50 pupils. There also existed so-called "skholy gramoty," or reading and writing schools which were not official, but which did considerable toward diminishing the illiteracy of the rural population. Parish schools of the Ministry of Education also existed, but the attention and care of the Ministry was not directed to them.

But, in spite of restrictions and the imposition of principles directed rather to the furtherance of political power than the welfare of the schools, education and culture made considerable progress in the reign of Nicholas. This may be attributed to several factors: first, the turning of attention inward to the country and its problems, resulting in a study of its history, its ancient culture, its language and its institutions, to an extent hitherto not equalled; secondly, the impossibility of further imitation of contemporary European institutions and ideology, and the consequent maturing of previously imported doctrines and the spontaneous development of characteristically Russian attitudes; thirdly, the severe and concentrated study of what the curricula of the various schools did permit; fourthly, and of the greatest significance, the fact of a vast increase of eminently superior thinkers in the country, resulting in what has been called the Renaissance of the Forties, a

movement which was embodied in writings of history, law, philosophy, science and literature, and of which the University of Moscow was the center, creating for herself a place in the intellectual history of the country which she has never entirely lost. It was this which gave such impetus to study and to the ideal of obtaining an education, that regulations were almost of no avail to those who had seriously determined to obtain it, and so alarmed the government that the already strict rules of the early period of Nicholas' reign were still further modified to restrain the movement toward the gymnasia and universities. It is in this stimulus to education that we find the beginning of the later movement, of the 'sixties, for the spread of elementary schools. The restrictions of 1848 and later were but a temporary interruption of this growth. (Kornilov, vol. I, chaps. XV, XVIII, XIX; Milioukov, 69, vol. II, pp. 346-356; Kniazkov and Serbov, pp. 199-237; Darlington, pp. 63-86; Source 3, part III, chaps. II-VII; part IV, chaps. II-VIII.)

CHAPTER VII.

Alexander II, 1855-1881

The Great Reforms and Subsequent Reaction.

It is a curious fact that the chief rulers considered up to this time should have had, each of them, a period of reform and construction, and a period of reaction; Alexander II differed, in this respect, not at all from Catherine, Alexander I and Nicholas I. Of all the outstanding rulers of Russia Peter alone seems to have persevered in his creative work to the end of his reign. The dividing year with Alexander II was 1866, the year of the first attempt on his life, though symptoms of reaction appear earlier, in 1861.

The failure of Russian arms in the Crimean War roused the general public from the depression and fear which had controlled it since the excessive reaction of the period of 1848. Interest in public affairs revived, and it was quite apparent to all that only vast changes in the management of the country could prevent general and widespread disorder. The censorship which had prevailed up to the death of Nicholas had not prevented the circulation of manuscript copies of treasonable material, and in them the system of the late Tsar was as mercilessly criticized as in the public handbills which appeared after the defeat. Pogodin's "Political Letters" are a good example of the criticism which circulated in intellectual circles. "The Emperor, charmed by the brilliant reports (of his ministers) has no real knowledge of the condition of Russia. . . . All the ways through which thought might find expression have been closed. The officials think only of how to gain the good will of their superior, . . . They form one friendly, secret, masonic society . . . They regard every thinking man as an enemy . . ." (Quoted, Beazley, pp. 424-425.)

Alexander II had been a warm admirer of the policies of his father, who had kept him busy and trained him thoroughly in the affairs of state, but he had seen the breakdown of the system in the years of the war, when even Nicholas had begun to lose faith. The death of his father left Alexander with an enormous and heroic task, and one that required immediate attention and

prompt measures of relief. The first few months of his reign the war still demanded every attention and when peace was concluded, Prince Gorchakov wrote to the emperor,—"It is fortunate that we have made peace, for we could have fought no longer." As a preliminary relief, before the consideration of the means to more extensive reforms, the censorship was lightened, prohibition against foreign travel removed, the position of the universities bettered, and some of the restrictions on the students removed. In 1856 Alexander gave the first intimation of the direction of his first reforms in addressing the nobles of Moscow, and opened up the whole question of the liberation of the serfs, a matter that was to occupy much of his time in his reign, and was to lead to a whole new set of problems. "It is better," he said, "to begin the abolition of serfdom from above, than to wait until it begins to abolish itself from below," and asked the nobles "to think how this may be accomplished." (Quoted, Beazley, p. 426.) This came as a surprise, but it seemed to Alexander that this question must be settled before any other.

In response to this request for advice the nobility simply waited for the government again to take the initiative, though they realized that the end of serfdom was at hand. The question was, What would be the conditions of the emancipation? There were two clearly different situations, which demanded, the nobles believed, entirely different settlement of the question. In the fertile provinces of the center and south of Russia, where the nobles derived their income from the land by the unpaid labor of the serfs, they were willing to liberate them without payment, for the freed peasants would have, of necessity, to work for the nobles, who held it a requisite part of the reform that they themselves retain the ownership of the land. North of Moscow an entirely different situation obtained, for the land was not profitable to work in face of the competition from the south, and the income of the nobility was derived more from the payments made by the peasants for permission to work in the factories of the towns, than from agriculture. These landowners, consequently, demanded that the peasants pay for their freedom, but were, on the other hand, willing to give up some of their land. To satisfy both these camps required a compromise.

In March, 1861, the Act of Emancipation was published. All the peasants were allowed 'perpetual possession' of some land, paying yearly dues for the use of it. By agreement with the original landowners they could come to own it outright, paying a sum, advanced by the Government, the so-called "redemption' payments,'

equal to the use-rent for 16 and 2-3 years. The amount of land assigned to each "household" or peasant varied in the different districts, and in most cases was smaller than that which they had worked for themselves, as serfs. In order therefore to pay their taxes, they had to rent more land, or labor for the old owners or follow some other occupation than agriculture. Thus the act of 1861 contained many unsolved problems.

One of the first questions which arose was that of local government, and the law of 1864 endeavored to solve it. The management of local affairs for each district was entrusted to a council elected by the local inhabitants, and while the original plan had been to unite all classes of each district into one electoral body without distinctions of class, the beginning of the wave of reform and conservatism was able so to modify this that property became the basis of the new institution. The large landowners became more largely represented than the peasants, but were not able to obtain an absolute preponderance. Each district had its own council or Zemstvo constantly in session, and the activities of the Zemstvos in a given province were to be co-ordinated by a Provincial Council. Both districts and provinces varied enormously in size, and no smaller unit than the district was provided. The duties of the Zemstvos were to keep up the roads, provide for famine relief, maintain existing elementary schools, hospitals and similar institutions and supervise agricultural matters.

Among the reforms one of the most efficient was that of the law. Proceedings in the courts were made public, and the ancient rules of procedure were replaced with the modern system of prosecution and defense, and trial by jury for all but political cases and certain offenses by officials was introduced. This constituted one of the most radical reforms, but suffered with the rest of the new ideas when the era of reaction came.

The attempt on the life of Alexander in 1866 intensified the reaction which had shown itself in '64, in connection with the stamping out of the Polish rebellion of that year, and its force was at once directed against all that had hitherto been shown a measure of freedom. Education, in particular, suffered. The presidents of the Zemstvos were made responsible, in 1867, for the prevention even of mere discussion on subjects beyond their control, reports of their activities were subject to the censorship of the government, and they were not allowed to publish accounts of the different works they were engaged in. The right of the public to attend their meetings was curtailed. The courts suffered, also, and the appointment of judges was tampered with. A new type of censorship, in addition

to the old prohibitive system was introduced, and the so-called "punitive censorship" made editors responsible, after publication, for anything and everything which the official in charge wished to construe as contrary to the best interests of the autocracy. Public opinion began, once more, to reach that condition in which it had been at the beginning of the Crimean War.

The inevitable result of all this repression, particularly after many and sincere promises and shows of reform, was the building up again of active resistance in those of the population who had both education and initiative, and the courage and wit to use it. The following section will trace the evolution of the new liberal tendencies as well as that of the more bitter and more physically active revolutionists, whose activity led, eventually, to the assassination of the Tsar, in March, 1881, on the afternoon of the same day on which he had earlier approved a new series of reforms, advocated by the Minister of the Interior, Loris-Melilsov. (Kornilov, vol. II, chaps. XX-XXII, XXVI, XXXII-XXXIV, XXXVI, XXXVII. Kovalevsky 101, chaps. VII-IX. Mavor, vol. I, Book II, chaps. XII, XIII; Book III, chaps. V, VI; vol. II, Book IV, chaps. IV-VII.)

Growth of Organized Social Thought and Action.

With the initiation of the reforms of the earlier period of the reign of Alexander II, there also began a development of social and political evolution that not even the reaction of the later period could entirely check. These reforms, giving a new freedom and a new self-government to the millions of serfs, who necessarily had to have some education, and who, obtaining that education, were in a position to demand and help in obtaining still greater opportunities, together with the new legal system, created a new social Russia. The nobility, too, rather inconsistently displeased with the action of the government in freeing the serfs, though it had asked and waited for suggestions from the nobles, were exhibiting bitterness and dissatisfaction. The class interest of the nobility as distinct from that of the government itself was growing, but this purely oligarchical tendency was balanced by a more generous and liberal expression of a part of them, who identified themselves with society as a whole and demanded still further universal, liberal reforms. These were the so-called "kayushchisya dvoryane," or "conscience-stricken gentry". A third group of social workers was that of the younger generation of the educated "raznochintsy", or men of mixed classes, more democratic and somewhat distrustful of the "liberal" ideas of the second group of nobles.

Radical opinion was growing and, no longer confining itself to small groups of officers and secret societies, small in numbers, began the effort to educate the public, and to win converts on the basis of a definite program of criticism and reform. Reform "from above" began to seem endlessly long in coming, and inadequate when it did come. Members of all classes seemed motivated by a sincere desire to advance the well-being of everybody else. "In the years 1860-1865 a bitter dispute was being fought out in nearly all well-to-do families between parents and their sons and daughters, who claimed the right to determine their life according to their own ideals and aspirations. . . . After a hard and bitter struggle many of them gained their personal independence, and desired to use it, not for their personal convenience, but for the purpose of spreading among the people that knowledge by which they had secured their own freedom." (Kropotkin, p. 301.) Radical opinion, moreover, was acquiring a philosophy. Chernishevsky, Dobrolyubov, Pisarev, so-called "critics," were fashioning a social philosophy which was to have a far reaching effect on their own and succeeding generations. Pisarev carried the principle of "emancipation" to a conclusion which was literally what it was, in the phrase of the day, called, "Nihilism", demanding the freeing of the human mind from all religious, moral, and intellectual bonds, from all traditions, whether of family, of ideals or of conduct. This was philosophy, and a doctrine of thought and words, but the "doctrine of the deed" was to follow and to put literally into effect the teaching of the critics. In 1861 active revolutionary groups were organized, some of them advocating immediate social revolution, others the preparing of the ground for the time when revolution must inevitably come, of itself. The circulation of revolutionary proclamations, broadcast, in 1861, and a series of incendiary fires in St. Petersburg in 1862 brought on action by the government against the growing movement. The "Sovremennik" (Contemporary) of Chernishevsky and the "Russkoe Slovo" (Russian Word) of Pisarev were suspended from publication for eight months, and Chernishevsky sentenced to fourteen years in Siberia. These activities and the Polish rebellion of 1863-1864, which the government held revolutionaries responsible for, did much to discredit their activities, and the attempt of 1866 on the life of the Emperor was met, on the one hand, by increased vigilance of the state and, on the other hand, by a movement against revolution, on the part of the "liberals". The radical journals were entirely suppressed and numerous changes made in ministerial posts in favor of the reactionary party.

But new leaders and a new movement sprang up among the radical element. Lavrov and Mikhailovsky took the place of Chernishevsky and Pisarev and the personal element of the earlier teaching became combined with a social element that was more constructive. The new basis of progress was to be the physical, moral and intellectual development of the individual and the embodiment of truth and justice in social rather than political forms. The minority who were already cultured were to become a force to bring enlightenment to the uncultured majority. Again, a group ready to put such doctrines into immediate practice sprang up, of which Bakunin was the leader, who added to this teaching the additional doctrine that such a cultural emancipation for society could take place only with the complete destruction of the authority of the state, by means of a social revolution. So, by another road, the revolutionists were back to the same conclusion. But all the revolutionary groups were in agreement that to advance the interests of the "people", it was necessary to "go in among them". Thus arose the "v narod", or "the going among the people" movement, and early in the year 1874 large numbers of young men and women went out into the rural districts and lived among the actual peasantry, endeavoring to teach them the principles which had actuated their own thoughts and feelings. The movement which started with the idea and the hope of thus finding a new source for the materialization of the necessary force for the overturning of society ended disastrously, for the revolutionists were quite misunderstood by the peasants, to whom the abstract ideas of the propaganda meant little or nothing. Furthermore, the revolutionists were easily followed by police agents, aided, at times, by the very peasants whom the workers were endeavoring to "save". One outstanding gain was made by the workers in this movement,—they saw clearly that the peasant, whose one hope and desire was "land, and more land", could only be reached by a much more definite and concrete appeal. The revolutionists, in other words, began to see what the real needs of society were, as opposed to the abstract formulation of a philosophical creed, suitable only to the "cultivated minority".

As a first move in a new direction, the "Land and Liberty" society was formed, in 1876, the very definite aim of which was the attraction of the peasant class by arousing in them the hope of a new distribution of land. This question continues to be an important factor in all revolutionary activity to the present time. The two currents constantly seen in Russian social movements, were in evidence here, and the society broke up into an "active", terrorizing group, and a group that continued to appeal to propaganda, and

which once more "went in among the people". In 1879, the separate divisions of the Land and Liberty Society became known as the "Black Partition" (peaceful propagandists), and the "Will of the People" (active terrorists). Public opinion again leaned to the side of the revolutionists, in view of the increased severity and reaction of the government, and the nucleus of this new public expression embodied itself in the Zemstvos, to which the government appealed for aid against the revolutionists. The Zemstvos, with few exceptions, showed a new spirit of revolt, replying to the requests of the government with such phrases as, "society could only struggle against subversive ideas, if it possessed the necessary weapons, freedom of speech, of opinion, and of the press". About 1879, an organization of Zemstvo leaders, called the "Zemstvo Union" met with some of the revolutionary leaders and asked for a cessation of active terrorism, to give the government an opportunity to introduce its promised reforms, but the government failed to live up to the hopes and expectations of the time. Consequently, there was a revival of the most extreme acts of terrorism, culminating in the assassination of the Emperor. (Kornilov, vol. II, chaps. XXIII - XXV, XXXV, XXXVI. Mavor, vol. I, Book II, chap. IX; vol. II, Book IV, chaps. IV-VII. Zilliacus, chaps. III-VI. Ivanov-Razumnik, vol. I, chap. VIII, vol. II, chaps. I-III.)

Education, Society and Alexander.

Education shared in the reforms that so strongly characterized the early years of Alexander's reign, and co-incident with this new freedom there arose a pedagogic literature of criticism and construction. Pirgov's "Voprosy Zhizni" (Questions of Life) is an example, appearing in 1856 and presenting the thesis that the object of education is to make men, not to prepare students for special callings. This was, of course, in direct contradiction to the doctrine of autocracy, that education was to make good followers of Orthodoxy, Autocracy and Nationalism, for all three of these terms have latent within them the idea of "each to his class and his calling". To the Russians who believed that the primary schools were mere efficiency institutions to give the required minimum of literacy to the lower classes, and the secondary and higher institutions mere avenues to state employment, this was an entirely new way of looking at the matter. General literary magazines began to give space to educational articles and several distinctly educational journals appeared, such as the "Zhurnal dlia Vospitaniia," (Journal of Education), the "Uchitel" (Teacher) and the "Pedagogicheskii Sbornik" (Peda-

gogical Collection), all of which played an important part under the new freedom of the press in enlightening the public on educational matters as seen from another angle than that of the state. Under the general impetus of reform all branches of education made progress, private schools, Sunday schools, universities, schools for girls and public lectures.

The freeing of the serfs was, in itself, a fact to give rise to immense planning along educational lines. Now that these millions of men and women were free, and were to have some measure of self government, it could hardly be expected that they would assume their new responsibilities without some measure of guidance, and the new generation, that was to be born and grow up free, could not be left in the same condition of ignorance as had been their fathers and mothers. Slavophiles and Westerners agreed in this matter, however much they differed in other respects regarding the nature and function of the serf in Russian history, and there was some talk of introducing a compulsary system such as that of Germany. The newly freed serfs, too, took their position seriously, and had every desire to fulfill the demands of their new situation in society.

The economic effects of the freeing of the serfs reacted, in many instances on the nobility, particularly on the poorer among them. Many found themselves under the necessity of so educating their sons and daughters that they might be able to earn their living, and hence the demand for higher education for men and women rose rapidly. And with the freeing of the serfs restriction was, theoretically at least, removed from the boy or girl of lower social rank who aspired to rise in educational circles and in the service of the state. The resulting unprecedented influx into institutions of all kinds led to a greater increase in available candidates for posts in the civil service than the demand. The freedom of labor to move from one point to another initiated an era of development of natural resources, and this, in turn, to a demand for technical and professional education that has lasted to the present day.

The reactionary wave, however, followed so closely on the ear of reform, that the former began almost before the reforms were expressed in laws and statutes. The Polish rebellion, of 1861, was in part the cause of the change, for it seemed, at that time, that the youth of the universities had been instrumental in helping the Poles, and in spreading revolutionary doctrines. The University of St. Petersburg was temporarily closed in 1861. This whole movement of reform and reaction existing side by side was the reflection of the conflicting ideals of two generations,—the old and the new. Turgeniev, in his novel, "Fathers and Sons" has pictured this differ-

ence within the society of the period, a difference which grew with time, and which inevitably attracted to one side or the other all those active in social affairs. But the university reforms of '63 and the primary schools reforms of '64 were enacted before the full force of reaction had been brought to bear.

Dmitri Tolstoy, the reactionary minister, came to office in 1866. Previous to his accession, educational policy had been guided, to an unprecedented extent for Russia, by public opinion, and laws of a very liberal nature had been framed. The universities were one of the first institutions to receive attention. Since the middle of the preceding reign the universities had fallen below even the Russian standard, and in comparison with those of Western Europe they were quite evidently inferior. This condition was due to the lack of sufficient good teachers from Russian sources, the prohibition against inviting foreign instructors, the lowness of salaries, the difficulty of the examinations for the necessary higher degrees, the complexity and consequent superficiality with which the course of study was followed in the universities, the defective preparation afforded by the gymnasia in Latin and modern languages, which were necessary for adequate work in the universities, and finally the poverty of the universities and the indifference of the public of the period preceding the reforms. Vacancies in some chairs, unsatisfactory incumbents of others, disorders on the part of the students were the outward signs of this unsatisfactory condition. The reform of '63 was framed as early as '58 and then given long and serious examination before being put into effect, so that when it was promulgated, the reaction of the "fathers" and the state had already begun. The same policy was followed in the reforms of the primary system, to be considered next, so that for the first time the reforms really represented, to some degree, public feeling and beliefs. The reforms aimed at greater self-government of the universities and consequently placed the authority in the Council of the University; and a University Court, for th etrial of students in connection with university order, was established, consisting of three professors. Details of instruction, and decisions concerning the granting of degrees, bursaries, and remission of fees were also vested in the Council. A new class of university lectures, Privat-Docents, was created, in order to afford a supply of professors, salaries were raised, though not quite in the proportion in which the cost of living, due to the greater development and complexity of Russian life, had risen, the number of chairs was increased and the material equipment of libraries, museums and laboratories was financed. Admission to the Universities was now made dependent

on a leaving certificate, the "attestat zrelosti", from the secondary school of the candidate, instead of on an admission examination of the university. A move to admit women "auditors" was defeated at this time. Governing the whole scheme of reform was a new definition of the purpose of the universities,—contrasting greatly with that of the regulations of 1804 and 1835. Where the former had considered the universities as a branch of the system for preparation for civil service in the interests of the state, the new attitude emphasized "learning for its own sake" and strove to make the universities centers of research and scholarship. This was not yet in accord with the idea of the "critics" that only social service justified the possession of education, but it was nearer than the old conception had been. The system of "chin" or rank as a means of attracting students and rewarding those who were successful was criticised, but not done away with, for reasons of immediate expediency. We shall see that the first acts of Tolstoy were directed toward the nullification of many of these principles and privileges.

In 1858, Kovalevsky, as Minister of Education, began the framing of reforms for both primary and secondary education, and in '62 a special committee, formed of representatives from all the Ministries which had any control over elementary schools, was created, to consider means of co-ordinating all such schools under the Ministry of Public Education. Both schemes of reform were printed in the languages of Western Europe and sent abroad for criticism. In the meantime many elementary schools had been opened, under the Ministry of the Interior, in rural districts, and the Holy Synod had also been very active in opening parish schools while private initiative had partaken in the movement to educate the lower classes with considerable success. Leo Tolstoy's school at Yasnaia Poliana, his own estate, had been a great success and the source of his pedagogical principles as expressed in his Essays on Pedagogy. As a result of this activity and the increased attendance at higher institutions, it has been estimated that one out of each one hundred and seventy of the population of the middle of the 19th century were receiving some education. This does not take into account the "reading and writing" schools of irregular and illegal existence, which were established by unqualified and poorly educated private individuals in practically every village.

The question arose, in connection with the reforms, whether it were advisable to have the Holy Synod, rather than the Minister of Public Instruction control the elementary schools, a question which had arisen before and was to remain a subject of constant discussion. As a solution of the matter, while all schools at that time in

the charge of the Holy Synod were allowed to remain so, it was ordered that the Minister of Public Education should establish schools throughout the Empire, which should remain under his charge, and that the two Ministries should co-operate as far as possible. This co-operation, in fact, has not been very great. Another question was whether the elementary schools should be made compulsory. The different systems of Prussia, France and England were considered; that of Prussia, requiring attendance between definite ages for all children, was considered impossible for the Russia of that period, both because of expense, lack of sufficient teachers, wide distribution of the rural inhabitants and the poverty of the peasants; that of France, requiring the establishment of schools by each commune, was also rejected, for much the same reasons; that of England, somewhat modified, was finally adopted, and the Government contented itself with compelling nothing, but establishing model schools and encouraging private enterprise, and even subsidizing them, in case of necessity. This satisfied the demand for a share in the field of education on the part of private and social interests. But it was a strange reflection of the backwardness of the whole movement of education in Russia, that this element of private initiative came into the system at a time when other countries, after trying it, had come to the decision that it was not satisfactory and when even England, the country imitated, was gradually coming to the same conclusion.

Another question debated at length was that of the relative control of the local Zemstvos and the Ministry of Education. Kovalevsky favored the Zemstvos, and reflected the advanced opinion of the time, but the decision was finally reached to limit the power of the Zemstovos to the provision and maintenance of schools, the Ministry to administer and control them. The curriculum of the primary school was defined to consist of Religion and the three R's, together with church singing, if it was possible to provide it. No distinction of faith or rank, or of sex, if separate schools could not be provided, was to prevent entrance to these schools, and the question of fees was left to the decision of the Zemstvo providing the school. But these advances, as we shall see, were greatly modified by Tolstoy upon his accession.

The dispute of 1849-51 concerning the value and place of the classics in the secondary schools had left them with a curriculum which satisfied neither side,—the schools became neither "classical" nor yet "real" in a definite sense. So the same dispute came up again in connection with the complete reforming of the schools which took place in this first portion of the reign of the second

Alexander. Opinion was now quite in favor of the non-classical schools and had not yet come to see that both types might be established and maintained at the same time. But the Ministry had come to see this as a wise plan and so, after many revisions, the 1864 Statute regarding secondary schools created three types, a Latin-Gymnasium, a Latin-Greek-Gymnasium and a non-classical Gymnasium. Lack of teachers of Greek prevented the establishment of many of the second type. One important distinction concerning these schools was embodied in their relation to higher institutions: graduates of the classical school of either type were ipso facto admitted to the universities, graduates of the "real" school were admitted only to the higher technical institutions. All this really settled nothing and left the adherents of both sides dissatisfied, for each party wanted its own type of secondary school to be the sole type. In 1871 the partisans of the classical school won, for the time being, a complete victory. This will be taken up under the reactionary period.

Education for girls and women made great progress in the reign of Alexander, particularly that for the middle classes, for the higher classes and the clergy had already been provided for. In '58 provision was made for two grades of day schools for girls, one with a course of six, the other with a course of three years, based on a study of girls' education in Germany, ordered by the Empress Maria. These were open to all classes, and were transformed, in 1870, into a ten years' course of gymnasium and pro-gymnasium, with a supplementary course of one year in pedagogy for those who intended to teach. These schools were under charge of the Ministry of Education, but others quite similiar were opened under the Department of the Empress Maria. This naturally led to a demand for still higher education for women, and in view of the attitude of the government in 1863, in refusing to permit auditors, many women had gone to foreign universities. As a result of propaganda begun by Madame Konradi in 1867, who was editor of the "Nedelia", a movement was started which attained, first, the right to attend "advanced courses" which were given in the evenings, Sundays and holy days, voluntarily by the professors of St. Petersburg University. Four years later, in 1876, in order to prevent further "emigration" for education on the part of women, provision was made for their higher education in University towns, admission to these courses being made dependent on the completion of a secondary school, or similar status. In 1881 this course was extended to four years. Similiar results were attained in the field of medicine.

The strict attitude of the government toward private schools also relaxed, many of the restrictions of the previous reign were removed, and private schools allowed to be established, but subject to inspection to show that they were at least equal to those of the state, particularly as regarded curriculum and teaching staff. Right of entrance to the universities from the private secondary schools was made dependent upon the passing of an examination mutually agreed upon by the owner and the state.

All these new regulations and new schools went far toward satisfying the demand for education and would, if undisturbed, have doubtless proven the basis for a still more liberal and modern school system. But the reforms were destined to be once more overturned.

The new university regulations had been in force only three years when Tolstoy became Minister of Education, and began his determined plans once more to subject the universities to centralization and complete control. The events of 1861-4 and 1866 were, of course, the cause. From 1872 to 1879, the year of his dismissal, numerous reports were submitted on the subject, and many conferences held, and though it seemed for a moment, in 1879, that liberal ideas would, after all, prevail, the murder of the Tsar in 1881 turned the scale. The new regulations, however, were not actually put into operation until 1884, under Alexander III.

The 1864 law for primary education was quite as unsatisfactory to Tolstoy as the freedom of the universities had been. The two new types of primary schools which he founded he placed under the charge, not of the School Councils, but directly under the Ministry, and in 1869 the Zemstvo institutions were brought under stricter control by means of the newly created inspectors of primary schools, and finally in '74 the control of the local nobility over the Zemstvo schools was made stronger.

Similiarly in the field of secondary education, reaction gained the upper hand. The question of the classics is bound up with the changes in this field. The classics had been losing what little favor they had enjoyed among educational and cultural leaders, and with the growing independence in spiritual and intellectual matters from the West, the reaction against the classics had also grown. Moreover, they were not so integral a part of the civilization or the language of the Slavic world, and the leaning toward realism in thought and literature of the period led still further away from them. But the Government, in the period of educational reaction under Tolstoy, turned to the classics for these very reasons. Just because the classics were remote in their bearings from modern, and

particularly modern Russian, life, for this very reason they would offer good subjects of study for Russian youth in the universities. Classicism, it was held, would distract them from current matters and focus their attention on a dim and distant past where heresy of opinion would not reflect in daily life and action. Classics, then, and mathematics were to be the chief subjects of the secondary field. Moreover the specious argument was also used that the material progress of the West was the result of the absorption of the classical culture, and was in direct proportion, in each country, to the degree in which it had been assimilated. The banishment of the classics of the 1849-50 period was held to be the cause of Nihilism and the social unrest among the students. History, Russian, science and modern languages were shown to be subjects in which personal opinions could also be conveyed; the classics would be, it was held, politically sterile. The Statutes of 1871 carried these principles into effect.

One other instance of the interest of the general public in education was the Sunday School movement of the first period of the reign of Alexander II, though their development, like that of all other popular movements, was checked by the later reaction. These schools were primarily concerned with secular education, were open to all comers, and were taught gratuituosly by students of the universities and gymnasia as well as by regular professors of established state institutions, while expenses were met by contributions, the earnings of concerts and from other private sources. The movement began in the Kiev Educational District, the prime mover being the Curator, Pirogov. It was inspired entirely by a desire to aid the newly freed serfs, and the government was, at first, entirely favorably inclined toward them. But by 1862, when some hundreds of these schools had been established, the attitude of the authorities changed, and in that year, they were ordered closed until they could be reorganized on a new basis. This was due to a report that the teaching in a few of the schools had been against religion, property and the State, and while the schools were again permitted to open in accordance with the laws of '64 and '74, under state control, the movement did not regain its old enthusiasm until after 1890, in the reign of Alexander III.

Thus the whole spirit of progress and reform disappeared under the Ministry of Tolstoy, a man not opposed to education, but with very narrow and limited conceptions of its nature and its principles, its purposes and the methods of attaining them. He was called to office largely as a result of a reaction which had already started, and which was, in its turn, due to social activities and propaganda that expressed a hatred for existing conditions, and because it did so was

condemned to be itself stamped out, and the possibility of its rebirth prevented. Thus with the increased centralization and conservatism of the closing years of Alexander's reign, and remembering the fate which he met, we shall be prepared to see still further vacilation and readjustments in the field of education in the next reign, the period of Alexander III. (Kornilov, vol. II, chaps. XXVII, XXXI, XXXV. Milioukov, 69, vol. II, pp. 356-367. Chekhov, chaps. I. II, III to p. 168, and throughout. Darlington, pp. 87-132. Source 3, Part V, chaps. II-VIII; Part VI, chaps. II-IX; Part VII, chaps. II-X; Part VIII, chaps. II-III.)

CHAPTER VIII.

Alexander III, 1881-1894

The Beginning of the Great Reaction.

It will be remembered that Alexander II was assassinated on the afternoon of the day on which he had approved of a series of reform proposed by his Minister. Alexander III, his second son, though by nature not liberal, had gained some reputation along that line, and this, coupled with the fact that he decided to adopt the plans as approved by his father, gave some hope that his reign would not be entirely reactionary. But Alexander III proved to be no exception to his predecessors, in being able to shift his policy as time went on, so that we find in his reign the beginning of perhaps the darkest period of repression in modern Russian history, leading directly to revolution, and in the time of his successor, to the present Communistic state of the Bolsheviki. There was some little indecision at first as well as a blurring of the exact nature of the policy which was going to prevail. For the remainder of 1881 it seemed that reform would gain the lead, and the matter was debated at court, as in society in general, by the adherents of each policy, some representing the new reforms as equivalent to the ruin of Russia, others calling them the one salvation of the country. The new Minister of the Interior, Ignatiev, a Slavophile, announced in May, that the state wished to unite people and government, and would allow, for this purpose, local self government, and would restore the Zemstvos to their former position and to prove its sincerity summoned, in June of 1881, workers of the Zemstvos in order to confer with them. But this mere promise of reform was not to continue long. Already in April of the same year the Tsar had issued a Manifesto, reading, in part, "In the midst of our great grief God's voice commands us to stand firm at the helm of the government, relying upon Divine Providence, with faith in the power and truth of the Autocracy which, for the benefit of the people, we are called upon to strengthen and guard from any encroachments". (Quoted, Kornilov, vol. II, p. 252.) This could hardly be construed as other than the triumph of the reactionary party at court; and so it was. Yet it may well be doubted if the Tsar himself was the director of affairs, for two

outstanding figures dominate the whole of his reign, Tolstoy and Pobiedonostsev. The former was the same Tolstoy who had nullified all educational reforms in the preceding reign, and who now became Minister of the Interior; the latter was, if possible, even more reactionary, had been the tutor of the Tsar, was called in the phrase of the time, the "nihilist" of reaction, and had become, in 1880, Procurator of the Holy Synod. The period of Alexander III is, in a sense, the period of their dominance, and nowhere else is the spirit and the letter of the reactionary element so well and so powerfully expressed as in the latter's Essays, translated in English as "Reflections of a Russian Statesman." Only the revolution of 1905 was to break their power.

With the accession of Tolstoy to the Ministry of the Interior, the government seemed to feel safe in its policy of coercion. The schools and the Zemstvos were the first institutions to feel the effects. Failing in the attempt to close the Zemstvo schools, he endeavored, by a new Law of the Zemstvos, drawn up in collaboration with Pazukhin, a highly class-conscious noble and land owner, which was intended to restore the old class system as far as possible. The Zemstvo law of '64 had, it is true, been based on property, but no single group had been allowed to overbalance the other two; the new law, of 1890, gave the "gentry" a legal majority in most of the Zemstvos, the rights of the peasants being greatly restricted. "Land Captains" were chosen from the nobility of each district, given dictatorial powers over the communal life of the peasantry, and were thus able to rule quite arbitrarily, and even to interfere in private affairs. Moreover, the economic condition of the peasants became worse as their number and the general population became greater, for with the advent of larger new generations among them, the amount of land after subdivision among a family was very small, and by this time in many cases exhausted by poor methods of farming. Land was high in price, sometimes unobtainable, and only the better off among the peasants could purchase it, so many went to the towns, or migrated to Siberia. Those who remained on the original land were, in many cases, subject to famine, the death rate was high as well as the disease ratio. The only relief the government saw fit to offer was some reduction in the "redemption payments", and the establishment of a bank for loans. But again the richer among them were the only ones to benefit by these meager concessions. In 1891-1892 came the inevitable results,—twenty provinces were swept with famine and disease. The government held back, but the educated public, particularly the students, threw themselves into the work of relief, and thus began a new movement of

understanding between the "black" peasant and the class of the educated and socially broad-minded.

In the '70s there had been an industrial boom, but it had been short lived, for wages had soon fallen, and strikes were frequent. The period of development, constituting Russia's "industrial revolution" was to come in the last few years of the 19th century, but the period immediately before it produced a crisis in which the government had to interfere. Child labor for those below twelve years of age was forbidden, the hours of labor for those between twelve and fifteen were limited to eight per day, and it was forbidden to employ children in night labor. Inspectors were appointed to see to the enforcement of these regulations, and conditions were revealed, inconceivably vile. The years 1884 to 1886 saw the issue of several beneficial laws in this direction, but it was quite evident that Russia was approaching an industrial organization of society in the large centers with all the economic and social problems that such a growth involves. But, curiously enough, the workers themselves were not allowed to strive for their own betterment, and participation in a strike became a criminal offense. In connection with this condition of a large class of people, Russia was being affected by the West in a new direction, by the rapid and prolific influx of capital. The years 1900 to 1902 showed the results of "over-production", and from then to the War of 1905-1906 the development was slower.

Russia was developing in still other directions, and the colonization of Siberia as well as the conquest of Central Asia showed at once her power and her necessities, for the need of land was a fundamental cause of this growth, though the latter movement was also prompted by the need of subduing hostile neighbors. The details of these projects, however, seem outside the immediate field of this essay. But in connection with the development in the Far East, we meet with a factor which influenced the future course of Russia's career to a tremendous extent. By 1858 Russia had forced the cession of a considerable territory from China, including the harbor of Vladivostok, but when she attempted in '61 to establish a naval base midway between Korea and Japan, it became evident to the latter country that Russia constituted a menace to her. For some thirty years however, the matter rested, but quite evidently held within itself the germs of a future war with Japan. The war, itself, did not come in the time of Alexander, but in the reign of his successor, Nicholas II, but the causes stretched back a long way, and the results a corresponding distance into the future.

Poland, too, was a factor in the development under Alexander, but it is better considered under the social movements of the

reign. Foreign affairs and the diplomatic-political dealings with Western Europe, particularly with Germany, had little influence on the course of the internal development of Russia and showed no traceable effects on her institutions or social life, for Russia, since Alexander I, had more and more turned herself to the working out of those ideas which she had already received from the West, and those ideas which seemed, whether truly or not, to be particularly and essentially national and Slavic. (Kornilov, vol. II, chaps. XXXVIII-XLI. Mavor, vol. II, Book IV, chaps. VIII, X; Book VI, chap. V. Zilliacus, chaps. VII, IX, X, XII. Beazley, Book III, chaps. V and VI to pp. 518.)

The Broadening Social Movement

That Russia was growing in complexity and instability is clearly shown by the social movements of the period of Alexander III. They have an appearance of being far better adapted to circumstances in methods and theories than their predecessors, and while they fall short of their ultimate purposes, the situation is apparently left in the hands of a succeeding group of leaders,—destined, as events proved, to follow on the heels of the defeated state of the period of the Great War.

The repression of the Zemstvos by Tolstoy has been mentioned, as well as the labor legislation, forced by the terrible conditions of life of the factory workers, and the exhaustion and scarcity of land. All these were mutual causes and effects of the social changes. The famine of 1891 had brought the peasant and the social worker into really sympathetic relations, and the new bond was not allowed to be broken. The gentry land-owners, furthermore, were losing the economic basis of a ruling class; their land was not being worked profitably, the payments for the land given to the peasants in '61 had been, in many cases, spent, or surrendered for debts to the state, so that as the new century was dawning, more and more of the gentry were entering commercial and professional life, selling their estates and losing their special privileges. So, in spite of Tolstoy's legislation of 1890, giving control to the resident gentry, little by little the Zemstvos grew in self-government, helped by the liberal, educated members of the community,—and doctors, engineers, veterinaries, agriculturalists, many of whom had passed the liberal stage and were out and out radicals. From 1890 on, rapid progress was made in the organization and maintenance by the Zemstvos of schools, medical service, hospitals, treatment for the insane, measures against epidemics and famines, libraries, book-shops, lectures, agricultural

experimental stations, insurance for stock and crops, prevention of fire, and many other services which the government had not and evidently did not intend to supply. The Zemstvos were the movers in all this, and were making not only a social but a financial success of their undertakings, when once more, toward the end of Alexander's reign, the government became alarmed and began to use the old repressive measures. The full development of this conflict is the opening phase of the period of Nicholas II.

The revolutionary movement, proper, shows a characteristic change; instead of appealing to the peasant, who had proven unreliable and unenlightened, the new propaganda was directed to the growing class of factory workers, who were rapidly making of themselves a true proletariate, dependent entirely upon industry for wages, and residing in the large centers. It is in this period of the revolutionary movement that we find the beginning of the active formulation and preaching of the theories of the German Marx, whose Communist Manifesto of 1848 supplies the motto for the Soviet Republic of the present day. There began a combination of political and economic aims which endeavored to utilize the workman as the source of power to bring them about. But as only the economic side of the program appealed to the workman, a case again of lack of training and education, the political side was temporarily abandoned. The full fruition of this, like the Zemstvo movement came only with the accession of Nicholas. All this was partly the work of the active party of the Land and Freedom society which had split in 1879, as described in the last section on social movements. In 1880 this party, the "Will of the People" section, published in its secretly-printed organ a program for reconstruction, embodying the following demands,—a permanent representative assembly, self-government for the provinces, complete freedom of press, speech, meeting, election and conscience, universal suffrage, militia in place of an army, nationalization of the soil, transfer of factories to the workmen. In view of the program of the Bolsheviki, whose period is but forty years later, these items, particularly the last two, are of interest After the assassination of Alexander II, the revolutionaries turned again to propaganda, and made the army, as well as the workman, the chief field of their labors. Several times it seemed as if adequate leadership would have precipitated an outburst, but each time the government was forwarned or, in one way or another, was able to prevent a critical situation. Terrorist methods were constantly in evidence, dynamite factories were established secretly, and when one had been discovered, another took its place. Public outrages were frequent, as well as attempts on the life of the

Tsar. But these methods were not productive of the desired results, for men as brave as the revolutionists were to be found in any number to take the place of assasinated officials, and violence always recoiled on the terrorists with greater severity than was profitable. It was in part this disadvantageous side of the terrorist activity which led to the broader movement of the group endeavoring to convert the workmen, for a larger body than a few desperate and reckless terrorists was necessary for the accomplishment of the social purposes which inspired even the most violent acts. So the revolutionists turned to the printing press as a more satisfactory instrument wherewith to accomplish their ends, and scores of secret presses were established in the period between the accession and the death of Alexander. There was, furthermore, a union of thought and activity of all the various revolutionary and radical groups of workers, who began to realize that only with the union of them all, would be possible even their continued existence, not to speak of their continued working against the constantly increasing vigilance and power of the police and secret organizations operating against them. Their fuller power was to be exhibited in the next reign. (Kornilov, vol. II, chaps. XXXIX-XLI. Mavor, vol. II, Book IV, chaps. VIII, IX; Book VI, chap. V. Zilliacus, chaps. VII, X, XII. Ivanov-Razumnik, vol. II, chaps. IV-VI.)

The Effects of the Great Reaction in Education

The first Minister of Education, Nikolai, was not adverse to reform in education, but under pressure of the general court attitude he resigned, in 1882, to be succeeded by the former assistant of Count Tolstoy, Delianov, and with the latter's accession, there was no question that the schools would be conducted in the same way as Tolstoy had himself administered them during his time of office. The aims of the Autocracy, in the field of education, were Russification and centralization, ruthlessly pursued. This policy was carried out by restricting the universities still further, giving the Church an increased share in the control of primary education, limiting the rights of Jews and the lower classes, and requiring the use of Russian as the language of teaching in the Lutheran Baltic schools.

The universities, as usual, as the hot-bed of independent thought, were the first to receive attention. Delianov, before the Imperial Council, pictured the universities as degenerate institutions, which had been corrupted by the freedom which they had had, and which had become the center for the "anti-governmental" ideas among the youth of the country. "The root of the evil", said

Delianov, "lies in the fact that the Government has held itself aloof from university instruction, and has left it to the individual discretion of the professors, and to the equally arbitrary decision of Faculty meetings and the University Council, . . . who could not possibly supervise their work with anything like superior authority. . . ." (Quoted, Darlington, p. 133.) In 1884, after consultation and discussion by the Imperial Council, the majority of whom did not at that time favor the proposed stringent regulations, the Tsar approved the act, the passage of which was due largely to the determined perseverance of Tolstoy and Delianov. The universities had now reached the lowest limit of self-control, for at no time, not even in the period of Nicholas I, had the control been so strict, nor university freedom, of both students and officers, so circumscribed. All members of the universities now became state appointed officials, and through examining commissions and examination syllabuses control of the course of study and the right to graduate was insured to the government. The choice of the students both as to the courses and the electives as well as the hours of attendance, was also rigidly defined, and made much narrower than in the period immediately preceding.

The changes in the secondary schools were neither extensive nor important. The real schools were criticised as not satisfactory, and under competition with the new technical schools described later, were turned into "general" schools, i.e., they ceased to be schools where a "special" education was given. The regulations of '88 increased the hours of modern language study, mathematics, Russian, history and nature study, and decreased the hours devoted to technical studies. In 1890 the curriculum of the classical school also underwent revision, and Russian and religion were stressed more, and the classics less, though these changes pleased neither side of the partisans of the old controversy.

The most constructive work of the reign was done in the reorganization and enlargement of the field of technical education, which had had a comparatively recent development, dating back for its beginnings, apart from Peter, to not earlier than 1865. These schools, furthermore, unlike those of Peter, had been and were for primary and intermediate work, whereas Peter's had been higher in grade. In 1881, such of these schools as had been already established under the Ministry of Finance and various other ministries were transferred to the Ministry of Public Education, in order to make uniform the regulations which governed them, and to outline a policy for their future development. The Ukaz of '88 determined the de-

tails of the reorganization, provided definitely for two grades, intermediate and lower, and for trade schools, intended to prepare for definite trades. Apprentice schools and lower trade schools for the rural districts followed in 1893-1895.

But the most important of all the measures taken in this reign was in connection with primary education, for the changes in secondary and technical education were comparatively insignificant, and the restrictions placed upon the universities so familiar that they did not constitute a new departure. In connection with the whole attitude toward the primary schools, attention must again be drawn to the essays of Pobiedonostsev, for they contain in clear and detailed form the whole reactionary spirit of the period. It had become evident that the Zemstvos, in spite of their efforts and determination, had not accomplished the huge task of bringing elementary education within reach of all the rural dwellers. Attention was therefore directed to the hitherto despised and illegal "shkoly gramotnosti," or reading-and-writing schools, which existed in practically all rural districts, and it was proposed to make their existence legal and encourage them, in the hope of thus bringing at least the rudiments of learning within reach of all. It was also felt that the teachers of these schools were, from their very ignorance, incapable of spreading revolutionary doctrines. So in '81 a regulation was issued legalizing them, and the "shkoly gramotnosti" at once became famous, the fervid nationalists and Slavophiles hailing them as the one genuine Russian educational institution, the one thing not borrowed from abroad, and they became, as time went on, an increasingly important factor in Russian education. This may, in no very uncertain sense, be considered an advance, though the "shkoly gramotnosti" were not the equivalent of the ideal which had been sought for "all the people". But three years later a step was taken that was greatly to limit the field of primary education. This was the edict of '84 which set up a rival primary school system side by side with the regular one,—the new schools being in charge of the Holy Synod and permeated with the religious element in method and curriculum. This was due to "dissatisfaction" with the Zemstvo schools and those of the Ministry of Education, because they did not have the right religious atmosphere nor the right sort of "orthodox" teachers. Though the teaching of religion was obligatory in all primary schools, the priest who was appointed to give the religious lesson had no further control of teaching, and often, in the absence of a priest, a lay teacher assumed his functions, with no guarantee that his teaching would be in accord with the creed of the Orthodox Church. All this, ac-

cording to the Church party, tended to secularise the primary schools, which should be, they contended, definitely religious in tone. Moreover, the "v narod" movement had shown that the primary school could be made an instrument for the propagation of revolutionary doctrines, and the fact that many revolutionists had been school teachers had also been definitely proven. The new Holy Synod schools which were opened in 1884, with the object "of strengthening among the people the Orthodox teaching of faith and Christian morals, and of imparting useful elementary knowledge", were of two types, a two year school and a four year school, the former consisting of one class, and the latter of two. The curriculum consisted of religion, church singing, reading of Russian and Church Slavonic (the "holy" language), writing and elementary arithmetic. The longer course added Russian and Church history. Thus out of a total of some twenty-five hours instruction per week, church subjects occupied approximately half the time, and all instruction was given by the clergy or immediately under their supervision and in accord with their principles. For the supervision of the whole system, the Synod created an organization similar to that of the Ministry of Public Education and for funds relied on local contributions and private gifts, as did the Zemstvos, but received, in addition, aid from the imperial treasury. Appeals, on their part, to the Zemstvos did not generally meet with success. In 1891 all of the "shkoly gramotnosti" were placed in charge of the Synod, and it was also decreed that all new Sunday Schools, not connected with a definite day school, should also come under its protection and administration. Thus a very favorably placed rival system of the regular elementary schools was created and started on its career, controversy between them being inevitable and a final settlement impossible until such time as one of them should retire from the field This did not take place until the edict of the Soviet Republic definitely made all schools secular.

Certain other activities of the Ministry of Education are also important indications of the general policy of the period,—first, the russification of the Lutheran schools of the Baltic provinces and Poland, and secondly, the treatment accorded the Jews, socially and in the field of education. In 1886 to 1894 the Baltic schools were gradually made a purely Russian institution, and in 1885 the same process, begun in Poland in the period of 1868, was completed. The Jews were subject to the same "russification" process, but with stricter measures and even more deplorable results. The "temporary laws" of 1882, aimed at that race, have continued in force to

the period just before the present, and the narrowing and curtailing of both the habitation districts and the rights of education have been a consistent part of the policy of Nicholas II. Jews, according to the regulation of '82, were not allowed to hold public or state positions, were forbidden to buy real estate outside of towns, and by the regulations of 1886, were allowed only a proportion of 10% in the universities within the Pale of Settlement, that is Poland and South-Western Russia, in spite of the fact that by far the greatest proportion of the whole population was Jewish, while in the two capitals, Moscow and St. Petersburg, the proportion was limited to 2%. Pobiedonostsev is credited with the prediction that the restrictions against the Jews would "convert a third, a third would emigrate, and the rest would die of hunger". It was claimed that the Jews were revolutionists,—and this was the remedy. To sum up the whole attitude of the reign on its social side the following quotation given by Darlington, p. 147, from the Ministerial Circular of 1887, is excellent,—" . . . Thus, in strict accordance with this regulation, gymnasia and progymnasia are dispensed from receiving the children of coachmen, lacqueys, cooks, washerwomen, small tradesmen, and the like, whose children, with the exception, perhaps, of those who are gifted with extraordinary capacities, ought by no means to be transferred from the sphere to which they belong, and thus brought, as many years' experience has shown, to slight their parents, to feel dissatisfied with their lot, and to conceive an aversion to the existing inequality of fortune which is in the nature of things unavoidable". (Kornilov, vol. II, chaps. XXXVIII-XLI. Milioukov, 69, pp. 367-389. Chekhov, chaps. III, V, VI. Source 3, Part VIII, chaps. IV-X.)

CHAPTER IX

Nicholas II, 1894-1917

The Continuance of the Great Reaction

The thirteen years of Alexander III and the twenty-three of Nicholas II really form, in considering their characteristics, one large period,—the Great Reaction, for, with occasional gleams of promise here and there, the whole is merely a continuous effort on the part of the State and the Church to subdue, once and for all, the rising power of the opposition. In another sense, too, the two reigns are part of one another, in that the completion and fruition of the first is seen only in the second, for the comparatively short period of Alexander did not permit the gathering storm of social revolution to fully mature. Finally, the same personality, Pobiedonostsev, was all powerful under Nicholas, as he had been under Alexander.

The Russian people, with all the memories of their history in the past, and with recollections of Alexander III, yet looked forward with hope and confidence to the new Tsar. His first Manifesto was looked for with eagerness, for in it would doubtless be readable his attitude and purpose. But it was only hope, for the first acts of the new Tsar showed with unmistakable clearness that the policy of his father would be his own. The address of the representatives of the Zemstvo of Tver was the occasion of the first expression of policy. It read, in part, " . . . We allow ourselves to indulge in the hope that on the height of the Throne the voice of the people and the expression of its desires will be heard and listened to. . . . We earnestly hope that during your reign the rights of individuals, as well as those of already existing representative bodies, will be protected permanently and energetically. . . . We expect, Gracious Sovereign, that these representative bodies will be allowed to voice their opinions in matters in which they are concerned, . . .". It must be remembered, too, that this was a sincere and moderate expression of opinion from a legal and representative deputation, not a demand from a revolutionary body, yet the answer was as well adapted to the one as the other. ". . . It has been brought to My knowledge," answered the Tsar, "that during the last few months there have been heard in some Zemstvos the voices of some who have indulged

in the senseless dreams with respect to the participation of the Zemstvos in the general direction of the internal affairs of the State. Let it be known by all that I shall devote my whole power to the best service of the people, but that the principle of Autocracy will be maintained by me as firmly as by my lamented father". (Kornilov, vol. II, pp. 277-278.) Thus was clear notice served on the country that there would be no change in policy or method, and that Orthodoxy, Autocracy and Nationalism were still to be the aims and ideal of the state and the throne.

This statement was received with indignation and astonishment by both conservatives and revolutionists. To the latter, who had seen their own efforts combatted and suppressed, this was a new and a legal appeal, and that even this should meet with disapproval, only the more united them in their more violent methods of appeal. Their reply and the renewal of their struggle will be considered in the next section.

It is difficult, in the reign of Alexander, to separate sharply the threads of internal and external affairs, for Russia had been, as was noticed previously, growing more and more complex. Consequently, it was not so much ideas imported from abroad, nor fears of the occurrence at home of events taking place in other countries, as actual events involving Russia and the outside world which modified, in this and the immediately preceding reigns, the course of development of her civilization. The event which now re-directed the course of her activities was the Russo-Japanese War of 1904-1905. calling to mind, in the magnitude of its results, both the Crimean War, and the disaster of 1917.

We traced the expansion of Russia, in the last reign, to that point of the intrusion into the Far East when Japan realized that Russia was to be her chief menace. From the accession of Nicholas a still more active policy was adopted, and the Trans-Siberian Railway continued. The victory of Japan over China in 1894-1895 closed, for the time, the road to Russia's expansion, but when Japan had been forced to yield, through diplomacy, the fruits of her victory, Russia immediately continued her former advance, and through her own diplomacy, money and the excuse of protecting her interests during the Boxer rebellion, occupied Manchuria and began to penetrate even into Korea. Japan proposed negotiations, was treated with contempt, broke off diplomatic relations, and initiated a war which was to have huge significance for Russia, both abroad and at home. Russia was unprepared for war, internal affairs were bad, and after a series of severe losses by land and by sea, she concluded

peace on terms favoring Japan, and turned her attention to internal affairs, which were rapidly becoming desperate.

From 1905 to 1914, the year of the outbreak of the Great War, Russia was in an almost constant state of turmoil and disorder, the outline of which will be presented in the next section, and by the latter year was on the verge of just such another revolution as had occurred in 1905, when the news of a new war redirected the attention of all to the necessity of repelling an alien enemy. Again war and the failures of an inefficient Autocracy and dishonest Bureaucracy led to revolution, this time completely overwhelming State and Throne, and leaving as inheritors of the Tsars, first, a temporary Constitutional regime and then the present Soviet Republic. The events of 1917 to the present will be considered in the next chapter. (Kornilov, Russia under Nicholas II, chaps. I-IV. Beazley, Book III, chap. VI, pp. 518-546. Mavor, vol. II, Book IV, chaps. IX-XII; Book V, chaps. VII, VIII; Book VI, chaps. I, IV, V, VII, X, XI, XIII, XIV.)

The Growth of Oppositions: Zemstvos, and Revolutionists.

The attitude of the Zemstvos at the beginning of the reign of Nicholas, and the latter's uncompromising policy of adherence to the principles of his father, were indicated in the quotations of the last section. The growing opposition on the part both of the Zemstvos as well as the more violent bodies of workers constitutes the main story of the reign up to the revolution of 1905. Education is treated much as under Alexander III, and the attention of society, while taking it for granted that reforms must be granted in the field of education, is turned more and more to political and economic questions, a broader field, and including the former as part of it.

It soon became quite apparent that, no matter how courteous and how moderate the demands of the Zemstvos were, they constituted in essence a policy and a principle utterly at variance with the state, and that either the self-government of the Zemstvos or the autocracy of the state would eventually have to yield. Compromise was inherently impossible. Count Witte who had become Minister of Finance in 1894 wrote a short essay on the subject (Autocracy and the Zemstvos) in which he clearly points out that the progress of the Zemstvos and their ideas of self-government must eventually lead to constitutionalism, and that the government must definitely decide to foster such a movement or crush it out. The latter policy was decided upon, and from 1899 to 1904 a severe campaign was carried on against them, petitions submitted by them on

matters closely connected with their legal sphere of work were rejected, Zemstvos were forbidden to form unions or to meet in common, and they were even forbidden to organize famine relief campaigns. New restrictions were made against the Zemstvo schools, and efforts were made to prevent them publishing literature for their schools or for the peasants. In 1902 they were forbidden to collect statistical material, or to hire expert workers for the sanitary and veterinary work unless the government could certify that they were "sound" politically.

Naturally the moderate Zemstvo opinion grew stronger, tended to become allied with the more radical element, and, above all, like other movements in this period, verged toward a political propaganda. In 1902, a congress of Zemstvo leaders, headed by Shipov, passed a series of resolutions condemning the policy of the government, and another council in 1903 asked that all laws dealing with local affairs be first submitted to the Zemstvos for criticism. The local Zemstvos continued to become more and more liberal, even discussing political questions, a subject strictly forbidden, and leading in many cases to exile and imprisonment. In 1902 the movement acquired a journal, "Osvobozhdenie" (Liberation), published abroad, and intended to unite the opinion of the various sections of the country. Finally, in 1904, as a result of activity on the part of the more liberal both within and without the Zemstvos, there was formed the "Soyuz Osvobozhdenia" (Union of Liberation), which took as its aims the political emancipation of Russia by means of the abolition of autocracy and the establishment of a democratic constitutional regime. Thus from purely economic local matters, the Zemstvos were forced, by the unyielding policy of the government, to which they had originally been entirely loyal, to the last extreme of political activity motivated by a desire to overthrow the state and the throne.

In the meantime, side by side with this movement of the Zemstvos, there was also constant activity on the part of the revolutionists, who turned this time more and more to the proletariat of the towns and cities. To the famous address of the members of the Tver Zemstvo, whom Nicholas had rebuked, the revolutionists replied by a letter published abroad, which takes up the challenge of the Tsar: "You have spoken, and your words are at present known everywhere in Russia; ay, in the whole civilized world. Until now you were unknown, but since yesterday you have become a definite factor in the situation of the country, about whom there is no room left 'for senseless dreams'. . . . First of all, you are badly informed

about the tendencies against which you have decided to raise your voice in your speech. There has not been heard in one single assembly of any Zemstvo one single word against that autocracy which is so dear to your heart. . . . In one word, the only thing that was in question was the desire to see fall and crumble to the ground that wall of bureaucracy and courtierdom that has always parted the sovereign from the Russian people. . . . Your speech has strengthened in others the determination to fight to the bitter end against a hateful order of things, and to fight it with all the means they may have at their disposal and in their power. You have been the first to begin the struggle, and it will not be long before you find yourself entangled by it". (Kornilov, vol. II, pp. 279-280.) As one of the first moves Plekhanov and other members of the "Black Partition" founded, some little time after the formation of that organization, a still further subdivision, the "Liberation of Labor" Party and still later, in 1898, a congress of various socialistic groups resulted in the formation of the Russian Social Democratic Labor Party, with a program concentrating on economic questions, and using strikes as a method of obtaining results. From 1895 to 1896 so many strikes were organized, that the police of Moscow obtained official permission to organize strikes themselves among the workers of Moscow, in order thus to draw them away from the socialistic and revolutionary parties, and break up the unanimity of the movement. But the strikes got beyond their control, had to be suppressed with bloodshed, and accomplished the double purpose of discouraging this so-called "Police Socialism" and also once more showing the revolutionists the uselessness of purely economic activity, since it could be so easily imitated by the opposition. Thus, within the ranks of the Social Democrats, began a bitter struggle between the more conservative and the more radical, the "economists" and the "politicians", resulting, in a conference held at Brussels, in 1903, in a split within the party. The moderate minority, favoring "orthodox Marxism" and believing in peaceful methods and the use of the existing parliamentary methods, became the "Mensheviki"; the more violent majority of that time, hating slower methods of reform and the greater gains of the "bourgeois" elements, became, under the leadership of Lenin, the "Bolsheviki". These Social Revolutionists, or Bolsheviki, carried on the tradition of the former "Will of the People" party, using terroristic methods, and working for the people as a whole, and endeavoring to educate both the peasant and the proletariat of the towns and cities to the point where they would use an opportunity to bring about the promised "revolution". The

Bolsheviki were, furthermore, not interested in the immediate material welfare of the peasant, for they wished to bring about, if possible, his transformation into a part of the "propertyless proletariat". Into the details of the terroristic acts of this whole period it is not necessary to go, but many assassinations took place, including that of the Minister of Education, Bogolepov. The government, on its side, strove constantly to make existence still more unendurable; hundreds of students were exiled, the press was forbidden to discuss almost 2,000 new subjects, in addition to innumerable old ones, all the repressive measures against meetings and discussions were doubly enforced, and rebellious university students were flogged and forced to enlist in the army as punishment.

The year 1904 was one which saw a rapidly rising storm of opposition in all sections and among adherents of all parties. Branches of the Union of Liberation, previously mentioned, were formed in the provinces, and many of the Zemstvos, Tver in particular, suffered for their views and propaganda. Pleve, as Minister of the Interior, used his utmost power of repression, in the expressed belief that the opposition did not represent the general view of society, refused to sanction the re-election of Shipov at Moscow, though as leader and originator of the Zemstov movement the latter had done all he could to restrain action in legal and moderate channels. In July Pleve was assassinated, one of the almost innumerable relentless bureaucrats who were killed by the terrorists of this period. His successor, Svyatopolk-Mirsky, resembled in many respects that Loris-Melikov of the reign of Alexander II, and begged for a policy of mutual "trust" between the people and the state. But the people were better organized than in 1880 as well as less disposed to trust the government that had so often betrayed it. The Union of Liberation together with other liberal leaders held a congress in St. Petersburg and agreed on a series of resolutions, the so-called "eleven points", which were presented to the new minister. They were the same moderate democratic demands that had been made over and over again, but this time they were the official utterance of a sober and determined organization. None the less they were rejected, largely through the instrumentality of Pobiedonostsev and the Grand Dukes, but became the slogan of all the actively striving elements of the time, forming a basis for agreement between many classes and groups hitherto without any definite points of contact other than dissatisfaction with the existing state of affairs. A "banquet movement" arose, and spread throughout Russia, a series of dinners at which professional men, lawyers, doctors, engineers and teachers

expressed entire agreement with the demands of the "eleven points". The government, as usual when alarmed, became irresolute, and for a few days showed a tendency to compromise, but a promising edict of December 25 was overthrown in two days and the demands of the Zemstvos declared contrary to the fundamental laws of the Empire, meetings were forbidden, and the Zemstvos cautioned to restrict their activity to affairs that properly lay within their province. (Kornilov, Russia Under Nicholas, chaps I, II. Zilliacus, chaps. XIII, XVIII. Mavor, Vol. II, Book IV, chaps. IX-XII; Book V, chaps. VII, VIII; Book VI, chaps I, IV, V, VII, X, XI, XIII, XIV.)

The 1905 *Revolution, and the "Constitutional Regime".*

From the revolution of 1905 to the revolution of 1917 is perhaps the last period in the history of the Romanovs, and in it all the striving and, hitherto, unsuccessful efforts of the opposition break the power of the autocratic state twice; the first time, only for the moment; the second time, in 1917, perhaps for ever, for it seems unlikely that the "old Russia" will ever return. The whole reign of Nicholas seems crowded with significant incident and activity, but this last period is, in many ways, the most crowded of all in the history of the country.

The year 1905 began with a movement of the proletariat, under "Father" Gapon, a government agent, who had formed a Factory Workers' Society in Petersburg, under the governmental plan of directing the workers to purely economic questions under their own indirect supervision. But, as in other cases, the movement grew beyond the control of Gapon, and some 13,000 factory workers, whose demands for an eight hour day and better treatment were refused, decided to present a petition to the Emperor. Their procession was fired on and some 500 killed, though they had been orderly, and had not been led by revolutionists. This "Bloody Sunday" had the effect of once again discrediting the government and turning the masses even more strongly to the bitterest of revolutionary methods and ideas, as well as leading to still further strikes, both in the factories and in the universities, where the students "struck" in sympathy.

This was in January; in March the government, seriously alarmed, resolved to compromise. The Tsar's message upon the appointment of Bulygin in place of Mirsky, and after the assassination of Grand Duke Sergey, announced, "I am resolved henceforth, with the help of God, to summon the worthiest men elected by the

people for participation in the drafting and consideration of legislative measures." (Kornilov, vol. II, p. 302.) This, however, was no longer enough to satisfy the country, and the Zemstovs continued their demands for a representative government full and free, and no mere share in "discussion." In May the Union of Unions under Milioukov was formed, uniting the liberals of the Zemstvos with the professional classes. The disasters of the Russian-Japanese War were now a fundamental element in the agitation and distrust throughout the country, and even further concessions on the part of the government were of no avail. Even the promise of a Duma could not hold back the disorder. Banks, railways, peasants, factory workers, clerks in the law courts, postal and telegraph employees, employees of water and light plants,—one and all ceased to work, assembled, and came into open conflict with police and troops. Part of the Union of Unions and a section of Zemstvo workers formed the Constitutional Democratic Party (Kadets), and in St. Petersburg was formed the Council of Workmen's Delegates, dominated by the revolutionaries. The government had lost control, and even adopted the revolutionary tactics of the radicals, forming the Union of True Russian People, and the Black Hundreds or Black Gangs. Pogroms were the order of the day- directed by the government against radical and Jew, student and workman, for they were all classed together by the government as objectors to the policy of the state. A manifesto of October, in spite of all this secret activity of the government, announced that freedom of speech, conscience and meeting would be granted, but not a representative assembly. A new strike was called for November for the final victory over the last reservation of the government, but lacked the unanimity of the one of the preceding month and broke down. The promises already given had satisfied many, and the nation was no longer fundamentally united, while the government was continuing its organization of reactionary forces. For the remainder of the year the revolution lost in strength, and the gentry and the more conservative middle class, alarmed at the violence of the radicals, turned to the government as the lesser of two evils, relied on its promises, and by their moral aid carried the government over the year to 1906, when the tide once again turned in favor of the state.

With the return of the confidence and power of the government, the punishment meted out was indescribably severe. Every effort was made so to stamp out the very roots of radical activity and propaganda, that never again would even the semblance of a

revolution be possible. But such methods have never accomplished their purposes. The history of the period between the return to power of the government and the outbreak of the War in 1914 parallels that of 1900 to the revolution of 1905 plus the added element of the attempt of the government to make the fulfillment of its promises of 1905 a matter of words rather than deeds. The promised Duma did indeed come to exist, but was handicapped and thwarted in every direction, and its elections tampered with. Into the details of this period we do not need to go, but their result was to bring the country once more to a regime of strikes (1911), with a Duma (the fourth) openly censuring the government, and with armed conflicts in the streets. The progress of the War itself was but the final turning point in the struggle, and under the pressure of defeat and weakness, Nicholas II ushered out the Romanov dynasty. (Kornilov, Russia Under Nicholas II, chaps. II-IV; Mavor, vol. II, as above; Zilliacus, chaps. XVII, XVIII; Ivanov Razumnik, vol. II, chaps. VIII-IX.)

The Last Phase of Autocratic Education.

In education, as in other matters, the reign of Nicholas is a continuation of that of Alexander III, with the addition of a more particular attention to elementary education, and an attempt, under social pressure, to organize the field of these schools more satisfactorily. But the end of the reign, complicated by the events of the Great War, leaves the main problems of education unsolved by any other standard than the policy of compromise which the government, as usual, adopted. The program of the Soviet Minister of Education, which followed the Bolshevik success, has no connection with the official inheritance in the educational field, which the Romanovs left. It was to be a working out of the most radical of the tendencies which the Tsar and his Ministry were most active in suppressing.

The public interest in education, which had been characteristic of the period of the Zemstvo growth, and which had started under Alexander II, began to show itself also from 1890 on. New educational journals were started, and the daily press again concerned itself with the eternal question of "reform in education."

Primary education was the most pressing question, and received the first attention. The movement of the last reign to extend elementary education, by whatever means possible, continued, both economic and humanitarian motives being combined, for the social workers and revolutionists were interested in the latter and the

government in the former. The general public, too, had been impressed by the results of the famine of 1891-1892 and readily saw that a little education and a few schools might well prevent the recurrence of such a condition. In 1894 the Educational Committee at St. Petersburg, which had been investigating the question of elementary education, reported, in part, as follows,—"The introduction of universal (elementary) education appears to be one of the most important and the most pressing of the problems of our time. . . . General education ought not to be founded on a low level, i. e., on the existing degenerated and run-down schools. . . . For the working out of a plan for the introduction of general education the whole population of school age ought to be taken into account . . . General education ought to be founded on the principle of no fees. . . . The introduction, in our time, of compulsory education does not appear to be justified." (Quoted, in Russian, Kapterev, p. 83.)

Delianov retired from the Ministry in 1896, and after a temporary director for two years, Bogolepov assumed charge in 1898, bringing a varied experience in educational matters to bear on his problems. While Bogolepov introduced little or nothing that was new, his control, till his assassination in 1901, was characterized by activity, particularly in elementary education. As he saw the situation, an increase in schools was necessary, as many children were being neglected and many schools were overcrowded, but it was also necessary to have firm control of the schools,—private enterprise could not be permitted to do too much. He therefore encouraged the establishment of schools of the "1828" type, under direct control of the Minister of Education and in no way subject to the control of the Zemstvos, and also made easier the opening of so-called "Ministerial" Schools, by giving greater leeway to local officials and by increasing grants for them. During his tenure of office, the number of all primary schools increased some 25%. Due to the increase in the number of these two types of schools the share of the Government in providing elementary education was naturally proportionally larger, though all types of schools became more numerous. The payments of the government show a steady rise during the reign of Nicholas, and when the Zemstvo schools are also taken into account, it may readily be seen that no other period had witnessed such an extension of primary schooling. The following figures are instructive: In 1903, the Ministry of Education spent R 5,784,672; in 1906, R. 8,286,672; in 1909, R. 22,884,672; in 1910, R. 35,884,672; in 1916, R. 72,336,609. (For

first four, see Kapterev, p. 85; for last, see Russian Year Book, 1916.)

This growth of primary education naturally led to a still greater demand for teachers, who had always been more or less lacking in Russia, due, of course, to the fundamental poverty of institutions for training them, as well as to the restrictions which hedged them around, and the very poor pay granted for their services. To remedy part of this, Bogolepov created a pension fund in 1900, established temporary pedagogical courses throughout the country, and removed some of the restrictions, such as freedom of teachers' conferences.

That the government was really sincerely interested in the question of elementary education and its problems, at least as it saw them, is shown by still another bill, proposed but not enacted in 1907. The provisions of this bill were framed to make education in the rural districts both easier, and more under the central control. Many children of school age, particularly girls, did not attend the existing schools, because of the distance which separated them from the actual building, necessitating, often, that elementary school children live at the school for the week, returning only on Sundays. This naturally raised all sorts of difficulties and problems of food, lodging, the mingling of the sexes and so on, and placed a tremendous burden on the teacher of the school who was virtually responsible for the children every hour of the school week, day and night. The bill recommended, in part (1), All children of both sexes ought to be able to go to a school with a full course, regularly organized, i. e., four years in length, with not more than 50 pupils to one teacher . . . ; (2) Each school ought to serve a region of not more than three versts in radius. (Kapterev, Russian, p. 86.) That a law needed to be proposed for these requirements shows the actual condition of the schools. By 1910 about half of the Zemstvos had actually introduced general education, either completely under their own control, or partly under control of the government. The whole sum spent on primary education, for 1910, was R. 70,713,773. (Kapterev, p. 93.) For further statistics, see appendix.

The question of making elementary education compulsary was one of the most debated of the period; there is little doubt that the government was gradually coming to some solution of the difficulties connected with it,—largely financial and regional. But the War of 1914, as well as the troubles of the 1905-6 period, interfered. With the government, however, it would seem to have been almost

a purely economic motive that activated them, for the old ideas of class and station had by no means disappeared. In 1911 the question was submitted for consideration to the teachers of the elementary schools, meeting at Moscow; some 85% thought compulsory education desirable; 8% necessary; 9% that it was possible, on certain conditions; 62% that it was possible, as conditions were. (Kapterev, p. 96.) But, as the author just quoted says, "A law for compulsory education is not the first moment but the last moment in the struggle against the ignorance of the people, the time for it will only come when it is shown, apart from all the acknowledged needs and existing measures for obtaining universal education, that it has not been attained simply because of the barbarous egoism, indifference and low ideals of parents. But Russia is yet far from this, . . ." (p. 101.) It is, from many points, an economic matter; the government would prosper,—but the individual parent does not want to spare the son or daughter from the work on the farm or in the house.

In the field of secondary education one document of great importance was issued, the Circular of the Minister of Education for 1899, under Bogolepov, summoning a conference of educational experts, to suggest reforms and necessary changes. The circular calls attention to the uselessness of the established system of secondary education, the lack of physical and moral training, the too early specialization, the disorganization of the program the poor teaching and insufficient instruction in material knowledge and science, and the excessive predominance of the classics. The purpose of this Commission was not only to frame a theoretical program for reconstruction, but also to make the practical suggestions for the working out of the reforms, paying particular attention to physical and moral training, and the principles of Orthodoxy, Autocracy and Nationalism.

The proposals when completed were submitted to still another Committee, but before they could be embodied in practice, Bogolepov was assassinated. His successor, General Vannovski, took up the question, and summoned still another Commission, which arrived at very different conclusions from the first and second bodies, recommending, for example, the abolition of the dual system of gymnasia and the substitution of a single type school, with classics only as an elective in the upper grades, the removal of the classics from the list of admission requirements for the universities, and making the entrance into the gymnasium from the primary school easier. The Emperor confirmed these matters for a trial period of

a year, but other advice prevailed, and Vannovski resigned, being succeeded by Professor Sänger, formerly of the Moscow University. The question of reform of the secondary schools was, by order, to be his chief concern, and temporary measures were adopted until such time as a new complete system should be worked out. By these temporary measures the status quo of the period before the series of Commisssions was, practically, maintained, with the addition, for the sake of the inculcation of the ideals of Orthodoxy, Autocracy and Nationalism, and the practice of moral training, of boarding houses, where pupils might, as a group, be brought under the proper influences. Greek, however, was made optional in the majority of the schools.

The students, too, were beginning to take a hand in the discussion, so that the so-called "smutnoe vremia" or period of troubles of the academic year 1905-1906 were preceded by a period of years in which the students of the gymnasia formed unions or clubs for the discussion both of political and academic matters, more or less in imitation of the university students and the revolutionists. The Unions of the south and the north were characteristically different, the south being more violently political. For example, the Northern Union, formed in St. Petersburg in 1903-04, and continuing to exist for some five years, framed its problems thus: "The raising of the intellectual and moral level of students, and the arousing in them, as a body, of a deep and living interest in the social and political activity of the day." The Union wished to aid the students "to work out a finished, scientifically founded, progressive, social-political Weltanschauung (lit. 'contemplation of the world.')" In 1903 the organization of the gymnasium students in the south formed the "Union of Youth" and a committee, in March of that year, made public the following resolution: "To form among the students of the middle schools such an organization which would prepare these young people . . . for the struggle for their rights . . . " (See Kapterev for these and further details, pp. 61-62.)

The year 1905 saw many and determined strikes on the part of both the university and the gymnasium students; indeed, even the schoolboys of still lower rank entered into the general movement of protest against the government and into the expression of sympathy with the revolutionists and striking workmen. But the movement had other elements besides that of protest against the government in general. The students demanded, in agreement with the principles of the organizations mentioned above, reform in the

school system. But the return of strength and confidence of the government after the last strikes and the beginning of disorganization on the part of the revolutionists resulted in the same measures of repression and the same return of bitter supervision in the schools as in the general conduct of the country. The reaction was terrible; between 1905 and 1909, the period of greatest reaction, there were over 45,000 suicides in Russia, the greatest number, naturally, being among the intelligent and educated, and the greatest proportion being of people between 15 and 20 years of age. (Kornilov, vol. II, p. 332.) Nothing further was done materially to alter the secondary school beyond the stage in which the regime of Sänger left it, though the number of pupils attending the gymnasia has constantly risen, except to make supervision stricter, in order to prevent the recurrence of the troubles of 1905-06.

The history of the universities of this period is much the same story of gradually a rising tide of rebellion, of subsequent revolt and bitter repression. The disorders broke out earlier in this field, were more frequent, and were suppressed with, perhaps, more severity. But the vital questions were left just as much unsolved in the case of the universities as in the case of the rest of the educational field, though here, as elsewhere, the number of students grew constantly throughout the period. That some radical change would have been inherently necessary after the War of 1914 is quite evident, but the government did not survive to foster or suppress the growing power of the educated body of students and teachers.

The universities, like the other parts of the system, suffered from the vacilating purposes and changing plans of the number of Ministers, for this period of Alexander is noted for the number of men who held the post of Minister of Education. Under Bogolepov, some additions to the field of the university work were made, —a new Faculty of Law at Tomsk, a new Faculty of Medicine at Odessa, and the establishment of the famous Oriental Institute at Vladivostok. But the serious student disorders in the universities during 1899 put an end to constructive work, and turned the attention of the government to the necessity of suppressing the organizations which had grown up among the students. The Laws and Regulations for Universities expressly forbade any and every form of organization, but the students had formed them so much on the style of the secret revolutionary bodies that their strength and number had not been suspected. A quotation of some of the rules bearing on the subject will make clear the nature of the uni-

versity life which students were supposed to lead: "Students are considered as individual members (visitors) of the university and therefore no action on their part is permitted which bears a corporate character. On this account the presentation of addresses and petitions signed by several persons, the sending of deputations, or the exhibition of any notices whatever in the names of the students, are forbidden. N. B.—No notices may be put up without the signature of the inspector or his assistant. . . . Within the buildings, courts, and grounds of the university the organization of students' reading rooms, dining or food clubs, and also of theatrical representations, concerts, balls, and other similar public assemblies not having a scientific character, is absolutely forbidden. . . . Students are forbidden to hold any meetings or gatherings for deliberation in common on any matters whatsoever or to deliver public speeches, and they are likewise forbidden to establish any common funds whatsoever." (Quoted, Darlington, pp. 445-6.) Since the students did not obey these regulations the occasions of punishment and resistance were frequent, though they rose to perhaps the greatest height in 1899. For some three months, in that year, the trouble continued, the police even going so far as to flog the students with whips, in the streets of St. Petersburg. Two days later the students struck, declared the university "closed," and pledged themselves to remain away from the university until personal inviolability was granted to all students of both sexes. Throughout Russia some 13,000 students struck, and the Tsar issued an Ukaz ordering the strikers to be forcibly enlisted in the army regardless of their special privileges. Many professors were dismissed from Moscow and St. Petersburg. In 1900 a group of about one thousand students met in Kiev to discuss the situation, and upon the reporting of the occurrence by the rector, the university was surrounded by Cossacks and police, half the gathering arrested, almost two hundred drafted into the army and the rest expelled. Similar movements took place in all the university towns, the workmen often joining with the students. In St. Petersburg, on another occasion, seven students, among them a woman, were killed. It was one month after this affair that Bogolepov was killed by an ex-student. The student movement and the revolutionary movement became more and more affiliated and processions of students and workmen paraded up and down the city with the cry of "Doloi Samoderzhaviye," i. e., Down with the Aristocracy.

As a consequence the government summoned the usual conference to consider the matter, but the only measures were addi-

tional precautions against the recurrence of the outbreak. The number of inspectors for the universities was increased to three times the former number, making about one inspector to each 150 students, and students were restricted in their choice of universities. Exactly the same outbreaks took place in 1905-06 when some little measure of freedom was obtained, only to be abruptly taken away again in 1910 under Schwarz and by his successor Kasso. The year 1911 saw the same strikes and the same police methods. This time the government tried to solve the difficulty by a closer scrutiny of the university professors, more than a hundred of whom, the very best, resigned under pressure, and their places were taken by those "desirable politically" to the government.

Thus the whole policy of the period, except in the field of elementary education, was one of coercion and suppression, with revolt against it. The only constructive work, that of the elementary schools, was motivated by a desire to raise the productive powers of the country, to which may be added, as another example of the same motive, a growth of technical schools and the creation (1896) of commercial and business schools and classes and courses in commercial knowledge. By 1904 this enterprise had grown very considerably, but naturally involved little or no disturbance or discussion. (Kapterev, chaps. IV, V, VI; Kornilov, vol. II, Nicholas II, chaps. II-IV; Darlington, pp. 150-160; Source 3, part IX, chaps. II-VI.)

CHAPTER X.

The Transition to the Bolsheviki

The Two Revolutions.

The two streams of propaganda which we have seen throughout the course of the development of the opposition in Russia are found again to be rivals in the activities of the period of the Great War and the immediate period after it. The Bolsheviki, who were a portion of the party of the Marxian Social Democratic Labor Party, and the more conservative liberal leaders of the Zemstvo movement and the party for Constitutional reform, continued the struggle against the Tsar and autocracy, but not with the same aims and methods. It was the first success of the Constitutionalists that gave the opportunity for the later success of Lenin and the Bolsheviki. Into the details of the two revolutions it is not possible to go here, but a slight sketch of the chief events will make understandable the final triumph of the party of Lenin, as well as the basis of the educational decrees which his Minister of Education has issued.

The disturbances of 1905-06 which we have sketched, though suppressed, broke out again in 1910, continuing, sporadically until 1913-14, with protests against the Balkan Wars, militarism in general, as well as the old protest against the system of government and its methods. The consensus of opinion asserts that the year 1914-15 would have seen a far wider and far more successful attempt to overthrow the government than had yet been made, but the beginning of the Great War, for the time being, turned the attention of all to external rather than internal events. The country, as a whole, with remarkable unanimity, and with astonishing patriotism rallied to the defense of the country, regardless of class or creed, and Nicholas II probably never had a more united people than in the first few months of the War. The Bolsheviki and the Mensheviki and one or two other Socialist groups alone abstained from voting war credits in the Duma, though some of them supported the War later on. It is also highly probable that the Bolsheviki conspired against the government and the conduct of the War, in the very beginning, and several of the Bolsheviki members

of the Duma were arrested in November. Lenin, who had not yet arrived in Russia, believed that the defeat of Russia would be the best first step to the overthrow of the government. At a conference held in Petrograd, as the capital was now called, it had been proven, according to the government, that the Bolsheviki element were about to circulate their doctrines among the army, urging that "from the standpoint of the working-class and of the laboring masses of all the nations of Russia, the defeat of the monarchy of the Tsar and of his armies would be of extremely little consequence." From this, the members of parties holding such a view became known as "Porazhentsi," i. e., "Defeatists"; but this did not prove, as was claimed then and since, that they were in the pay of Germany. Perhaps some of them were, but this would have to be established on other grounds, for their position was quite understandable.

The majority of the Socialists, on the other hand, took quite the contrary point of view. The following passage from their Manifesto to the Laboring Class shows their attitude: "We, the undersigned, belong to different shades of Russian Socialistic thought. We differ on many things, but we firmly agree in that the defeat of Russia in her struggle with Germany would mean her defeat in her struggle for freedom. . . ." (From the text of the whole Manifesto, quoted by Spargo, pp. 95-100.)

With the Porazhentsi, however, another element was working, —not in open and friendly agreement, but with the same purposes at heart,—the so-called Germanophiles. It must not be forgotten that Catherine the Great was a German and that five out of six succeeding Tsars married German wives, and that Nicholas the Second was almost purely German in blood. Moreover, the bureaucracy had been started with German aid and enterprise, and has always contained a very considerable percentage of officials whose greatest inheritance was German. In the Great War as in the wars with Turkey and with Japan, official inability as well as official dishonesty had much to do with failures in military efficiency, and in evoking public and revolutionary action. After the early successes of the Russian army this element did all it could to disorganize affairs, and succeeded admirably in so doing. So badly were matters going in the army that the municipalities and the Zemstvos formed unions to do the work and furnish the supplies that the government was failing to provide, and both founded hospitals, feeding stations, transportation service and manufacturing centers, as well as furnishing tents, boots, socks and numerous other things which

were missing. With the spirit and heart of Russia and the Russian people there was nothing wrong,—circumstances alone, in the form of a corrupt bureaucracy were against them, and their work was, as usual, hindered and forbidden. Even the Duma was ordered indefinitely suspended (September, 1915.) The Black Hundreds were active, public aid was crushed, and the belief prevailed throughout the country that the court and the bureaucracy were planning a separate peace.

The year 1916 was a continuation, on a larger scale, of the activities, the plots, the Manifestos and the disorders of the previous year. When the Duma met in November, the country was ripe for revolt, awaiting only the action and the leadership of the Duma. Still the matter hung fire. The action of the government in appointing the worst of reactionaries to the most important positions, is good ground for believing that it really wished for a revolution as the easiest solution of the external and internal difficulties. The opening of the Duma for 1917 was postponed twice. The country was disorganized by strikes, famine and terror. Once more the government tried "police socialism" and endeavored to provoke sufficiently serious riots and disorder to necessitate the use of troops, and thus round up the active and dangerous elements in the cities,—but, as had always been the case when this method was tried, the matter got beyond control. This time the troops sympathized with the rioters, took care not to hurt them, and in the end, after a few days, openly joined with them. The government had lost the last means for its defense. On March 15th the Tsar resigned, and Prince Lvov formed a temporary government, to keep control until such time as the Constituent Assembly should meet and decide on the candidacy of Grand Duke Michael, the brother of the Tsar, whom he had named as his successor after first considering his own son. Michael refused, however, to reign without the sanction of a representative body. All this was the fruition of the first revolution of 1917, a purely political affair in which the people played little part, and which was accomplished largely by the educated and propertied men of the Duma, who did not represent, as a provisional government, the main masses of the country.

From March on, a second revolution, destined to overtake and overthrow the first, was in process of formation. This was to be a social revolution, a revolution of the lower classes, and led by men of an entirely different school of thought, with socialistic and Marxian ideology in place of that of a representative democracy.

The Provisional Government at once proceeded to issue Manifestos, removing limitation of class and race and guaranteeing freedom of speech, press and religion. But it could not satisfy the masses, who had come to the point of distrusting all kinds of government other than their own local and class methods. In the meantime the Council of Workmen's and (later) Soldiers' Delegates, which had been formed in February, 1917, in imitation of the similar bodies of 1905-1906, had been growing in strength and turning from the Mensheviki doctrines and control which had first characterized it to Bolsheviki principles, so that its Manifestos gradually changed from a demand for a Constituent Assembly to open defiance of the government of Prince Lvov. This Council was the basis of the Soviet form of government, the word "Soviet" meaning Council. Little by little the power of the Councils grew and the Provisional Government weakened. The period of Soviet Russia was at hand.

In April Lenin and several other Bolsheviki leaders arrived in Russia, bringing with them a definitely worked-out plan of campaign, one based on purely economic and class ideas and demanding the absolute destruction of all capitalistic machinery, whether of state or society, and appealing to and for the sake of the proletariat. "Democracy" in Lenin's phrase was a "bourgeois conception," and in his scheme for the reconstruction of Russia, there was little of what the Western world calls by that name. Indeed, in strict accord with this belief, the party of the Bolsheviki soon ceased to call themselves a section of the Social Democratic Party, of which they were the actual descendants, choosing instead the name of "Communist Party." What Lenin advocated was a purely Soviet form of government, in which the working class and the "poorest," i. e., property-less, peasantry would have power and constitute delegates. In May, Trotsky arrived in Petrograd, like Lenin, an old revolutionist.

From May until November there was constant playing for supreme power between the Provisional Government, with Kerensky as Premier, and the Soviets under Trotsky and Lenin, ending, on the 7th of that month, with the utter triumph of the latter and the flight and escape of Kerensky. The remainder of the Provisional Government were placed under arrest, and the "dictatorship of the proletariat" began, with Lenin as President of the Council of People's Commissaries, as the new government was called, and Trotsky as Commissioner of Foreign Affairs. (Spargo, pp. 76-208; Reed, chaps. I-IV; Lenin, Soviets at Work.)

The Educational Philosophy of the Bolsheviki.

It is seemingly possible to speak only of the educational philosophy of the Soviet Republic, for we have no evidence, at present, beyond the First Annual Report of Commissar of Education Lunacharsky, for 1918, of what has been done in contradistinction to what is being planned. Of the latter material there is sufficient to show a radically different system of education from that of the autocracy, and one which differs, moreover, in many particulars, from the educational philosophy of any other country. Reed's book as well as The Liberator, The Modern School, The Nation and The New Republic supply many of the documents, but the main source is the, at present, unpublished material of the Soviet Bureau of New York, from which most of the following is drawn.

The educational system and philosophy of the Bolsheviki party is in absolute accord with its economic and class ideas, and reflects the doctrines of Lenin and his party in every respect. As far as possible the system will be presented in the words of the original documents.

"In a country kept artificially in ignorance, the task of education could not find full development on the day following the People's Revolution, which transferred the power to the toiling masses. It is evident, however, that neither the conquest of political power nor the attainment of the position of economic mastery of the country, could be lasting, if the people should not also attain knowledge. Only a high level of public education could make possible a conscious governing-by-the-people,—which should embrace large masses. During the interval an important role had to be played by the Intelligentsia, which had enjoyed the odicus privilege of exclusive erudition, and was considered in Russia to be in sympathy with the people. In the time of the 1905-06 revolution, Kautsky pointed out with hope the fact that in Russia the task of the working class would be made easier by its sincere ally, the revolutionary Intelligentsia. Kautsky did not foresee at that time that, at the moment of the concrete realization of his dreams, at the hour of the social revolution, even he himself would turn enemy to the proletarian vanguard.

"However, there is no evil without its accompanying good. The abominable sabotage on the part of the majority of the Russian Intelligentsia, and in particular, of the so-called socialist Intelligentsia, proved an excellent lesson for the proletariat, laying stress upon the unalterable necessity for the proletarian to acquire

real knowledge immediately—for himself, so far as possible, and in full measure for his children.

"The leadership in this important task has fallen to the Commissariat for Public Instruction." (Annual Report, Lunacharsky, for 1918. Liberator, May, 1919.)

The organization and control of education under the Soviets is naturally different from the system of the Tsars; the same report goes on to describe this new method of organization,—"At the head of the Commissariat stands the People's Commisar and his assistant, and the staff, consisting at present of seven people, which decides all current affairs that are outside the competence of the branch superintendents. Basic problems are solved by a State Board of Education, which, besides the members of the staff and the branch superintendents, includes also representatives from the centers of the Soviet Government, from the labor unions and the workers' cultural organizations, and from that part of the body of the teachers which is taking a stand of loyal co-operation with the Soviet power.

"Finally, problems of especial importance, for instance, regarding a school reform, are considered at the All-Russian Conventions, the first of which, well attended, harmonious, and imbued with communistic ideals, took place in Moscow, in the month of August (1918).

"In the provinces the work of public education is being directed by the Departments of Public Instruction attached to the provincial (gubernia), county (ouyezd), city, and lastly, the volost, Executive Committees. The provincial, county, and city departments, corresponding to the Central staff, have attached to them Councils of Public Instruction corresponding, in the provinces, to the State Board." (Lunacharsky, report for 1918.)

The Commissar has also unified the school system: "In place of schools of all varieties and kinds—which formerly were sharply divided into a lower school for the plain people, and the middle school for the privileged classes and the well-to-do people, and divided, further into schools for boys and those for girls, into technical and classical secondary schools, general and special school institutions—the Commissariat has introduced the *Unified Workers' School,* covering the entire length of the course of instruction.

"The unity of this school should be understood in two ways: first, that the class divisions are abolished and the school adopts a continuous grade system. In principle, every child of the Russian Republic enters a school of an identical type and has the same

chances as every other to complete its higher education. Second, that up to the age of 16, all specialization is omitted. It is self-understood that this does not hinder the adoption of the principle of individual attention, and of the greatest possible variety of forms inside each school. But specialization in the full meaning of the word is permitted only after attaining the age of 16, and upon the foundation of a general and polytechnical education acquired already. The school is declared an absolutely lay institution; diplomas, in their character of certificates granting special rights, are abolished; the classical languages are declared non-obligatory.

"This school, unified in principle, is divided into two grades: the first of five years' duration, and the second of four years. This nine years' course is declared to be in principle obligatory.

"Our school will be in fact *accessible to all.* To attain this end, not only are all tuition fees abolished, but the children are provided with gratuitous hot food, and the poorest children with shoes and clothing. It goes without saying that all school manuals are offered to the children free of charge by the school." (Same report.)

After some discussion of the difficulties involved and the methods of meeting them, Lunacharsky proceeds to the statement of some of the fundamental aims of the school, and particularly in "Work as the Basis of Education."

"The labor character of the school consists in the fact that labor, pedagogical as well as, in particular, productive labor, will be made a basis of teaching.

"In the primary schools it will be mostly work within the walls of the school: in the kitchen, in the garden, in special workshops, etc. The labor must be of a productive character—in this way, in particular, that the children serve the needs of the community so far as their strength will permit them. . . .

"In the secondary schools the productive and the broad social character of labor is emphasized still more sharply. We deal here with children from thirteen years up. From this age there is possible an easy but *real* labor outside of the school; the participation in factory or shop work, the helping in serious farm work, the co-operation in some business enterprise, the co-operation in some social or state undertaking. From this age up we are *uniting* the labor of the children, the participation of the child in the social struggle for existence, and its development with its education. The school, without losing sight of the youngster, protecting it from harm, turning each act of its labor to the benefit of its general

physical and mental development, will lead it into the very tangle of social productive work." (Same report.)

The report, which covers only some five double-column magazine pages, then deals with City and Country School, Salaries, Educating the Teacher, Advanced Education, Libraries, Music, Art and the Theatres, for all these come within the field of activities of the Minister of Education under the Soviet regime. The report of the All-Russian Teachers' Congress, referred to by Lunacharsky, should be consulted in this connection. It is reported in "The Modern School," for November, 1918.

The documents of the Soviet Bureau of New York City, covering some fifty printed pages of highly interesting material, give greater details of organization, procedure and philosophy. Document No. 3, the paper of Commissary Lepeshinsky, read at the First Congress, contains some passages well worth quoting: "It has become customary to accuse the new government of indifference toward the cultural values of the past, and particularly, of disrupting the schools. Such an accusation is obviously wrong. In so far as the school stands for wrong principles, breeding privileges and a spirit of utilitarianism, and is a servant of the ruling classes, it has been destroyed. Such a school system was an instrument to befog the consciousness of the masses and crippled the children physically and spiritually. The destruction of the old school system, as an integral part of the whole social structure of the past was brought about not by a group of individuals, but by the elemental force of life itself. History had paved the way for such a destruction, and it had become a pressing necessity of the present revolutionary period." The paper then goes on to cover much the same ground as the report of Lunacharsky, with the addition of a stress on the creative and artistic elements in the child and the curriculum, and an insistence on the necessity of an inherent relationship between the activities of school and life. There has quite evidently been a considerable study and absorption of the doctrines of education current in Europe and America during the last thirty years, although no direct references are made. But it seems to be a fact, not at present supportable by documentary evidence, that American schools and American school and college books have been both the admiration and the ideal of the radical Russian educators, many texts having been translated into Russian. It is quite possible that some little of this enthusiasm has been supplanted by criticism on the part of the present educators in Russia, because of the believed connection of our culture with a spirit too capitalistic and mercenary.

Document No. 7 of the Soviet Bureau opens up the interesting question of schools for workmen, being the report of an issued statement of the Soviet of Railroad Workers' Deputies regarding the opening of schools for the teaching of drawing, painting, designing, mathematics and modeling for members of the Soviet and their children. Documents No. 9 and No. 10 go into the question of servants and service, showing the social principles which are to underly the school system of the Soviets,—the "socialistic schools." The same principles of activity for life, for productivity, for social service is inherent in them all.

It would be possible to quote many more pages of extracts from these documents, but enough has been given to show two things: first, the absolute break with the spirit, the organization and the methods of the old education under the autocracy; second, the essentially socialistic character of the new system, which, entirely apart from any judgment of the political aims and methods of the Bolsheviki, and apart, too, from any estimate of the present existence of schools embodying these principles, may surely be considered to meet, far more adequately, the provisions for a system of education, tentatively laid down in the introduction to this sketch. It will be of the greatest interest and value to watch, if the Bolsheviki regime continues, the application and the working out of these radically new principles in Russian education.

APPENDIX

Statistics of Population, Literacy, Religions, School Attendance, Budgets, Etc.

SOME GENERAL STATISTICS OF POPULATION, RELIGIONS AND LITERACY.

(A) Chief Races in Percentages:

	Russians	Turco-Tartars	Poles	Finns	Jews	Lithuanians	Germanic	Cartvelians	Caucasian	Armenian	Mongol	Others
European Russia....	80.0	4.9	1.2	3.6	4.0	3.0	1.4	..	..	0.1	0.2	1.6
By Vistula Provinces	6.7	0.1	71.8	0.1	13.5	3.3	4.3	..	..	..	..	0.2
Caucasus	34.0	20.2	0.3	0.1	0.4	0.1	0.6	14.5	11.7	12.0	0.2	5.9
Siberia	81.0	8.3	0.5	1.1	0.5	0.2	0.1	...	...	...	6.2	2.1
Central Asia	8.9	85.5	0.1	0.2	0.1	...	0.1	...	...	0.1	0.2	4.8
Finland	0.2	...	...	86.7	...	...	13.0	...	...	...	...	0.1
Whole Empire	65.5	10.6	6.2	4.5	3.9	2.4	1.6	1.1	0.9	0.9	0.4	2.0

(*Russian Year Book,* 1916.)

(B) Chief Religions in Percentages:

	Ortho-dox.	Moham-medans.	Roman Cath-olic.	Pro-tes-tants.	Jews	Christ's (other)	Non-Christ's (other)
European Russia	83.58	3.82	4.65	3.30	4.07	0.24	0.34
By Vistula Provinces.....	7.16	0.05	74.32	4.46	14.01	.....	.....
Caucasus	50.94	34.54	0.47	0.61	0.63	12.49	0.32
Siberia	89.97	2.20	0.60	0.28	0.60	0.01	6.34
Central Asia	9.18	90.29	0.17	0.12	0.16	0.06	0.02
Finland	1.90	.....	.....	98.00	.....	0.10	.....
Empire	69.90	10.83	8.91	4.85	4.05	0.96	0.50

These figures would seem to indicate a close connection between race and religion. (Compare with Table A.)

(*Russian Year Book,* 1916.)

(C) Distribution of Population, 1913:

	Area in sq. versts	Total Inhab's	Total per sq. verst	Rural per sq. verst.	Town Pop. Pct.	Rural Pop. Pct.
European Russia	4,250,575	125,683,800	29.6	25.6	13.2	86.8
By Vistula Provinces ...	99,691	11,960,500	120.0	90.8	23.3	76.7
Caucasus	412,311	12,512,800	30 3	26.3	13.1	86.9
Siberia	10,996,346	9,788,400	0.9	0.8	11.6	88.4
Central Asia	3,110,624	10,957,400	3.5	3.0	13.6	86.4
Finland	286,041	3,196,700	11.2	9.5	15.1	84.9
Empire	19,155,589	174,099,600	9.1	7.8	14.2	85.8

BUT, in the Government of Petrograd 72.3% live in towns, and in Moscow Government 49.8%. These are extreme.

(*Russian Year Book,* 1916.)

(D) Occupations in Percentages:

	Administration & Professions	Army and Navy	Clergy & Church Attendants	Domestic & Day Labor, etc.	Private Means & Pensioners	Agriculture, Fishing, Hunting, etc.	Manufactures, Industry, Mining	Communication and Traffic	Trade and Commerce	Other Occupations
European Russia ...	1.4	.8	.7	4.2	1.9	74.9	9.7	1.7	3.7	1.0
By Vistula Provinces	2.0	2.7	.5	10.2	2.9	56.6	15.4	1.7	6.7	1.3
Caucasus	1.1	1.3	.6	4.2	1.7	78.8	6.5	1.5	3.2	1.1
Siberia	1.1	1.1	.4	3.9	1.5	80.2	7.6	1.2	2.1	.9
Central Asia	.7	.8	.4	3.1	.5	82.8	6.5	.9	3.4	.9
Empire	1.4	1.0	.6	4.6	1.8	74.6	9.6	1.6	3.8	1.0
Finland ? ? ?										

(*Russian Year Book,* 1916.)

(E) Statistics of Illiteracy and School Attendance:

	Whole Population	Of Those Over 9	Percent of Whole Population Being Taught (1912)
European Russia	77.1	70.0	5.46
By Vistula Provinces	69.5	59.0	4.49
Caucasus	87.6	83.0	**
Siberia	87.7	84.0	3.68
Central Asia	94.7	94.0	2.19
Empire	79.0	73.0	4.99
Finland	....	....	7.19

**(Pre-Caucasus 4.91, Trans-Caucasus 2.98)

Out of a total (1912) of 8,030,088 scholars—

6,697,385 or 83.4% attended elementary schools.
467,558 or 5.8% attended secondary schools.
251,732 or 3.1% attended special elementary and secondary schools.
68,671 or .9% attended higher educational establishments.
544,742 or 6.8% attended private schools, foreign church schools and various non-Christian schools of religious character.

(*Russian Year Book,* 1916.)

The figures of the second table of the preceding page have been somewhat differently arranged by the Statesman's Year Book for 1918, but are in very close agreement. The rearrangement is as follows:

(1912)	Total No. of all schools	Students attending the various types of schools[1] High Schools	Middle Schools	Special[2] Schools	Primary Schools	Total No. Students
European Russia ..	95,381	58,370	373,746	196,279	5,523,143	6,151,538
Poland	7,022	4,674	23,376	19,022	291,931	339,003
Circaucasia	2,635	.....	8,896	3,571	165,410	177,877
Transcaucasia	2,548	188	12,735	4,451	127,657	145,031
Siberia	6,245	2,520	21,205	9,299	308,247	341,271
Central Asia	8,693	.....	11,773	4,416	95,785	111,947
GRAND TOTAL...	122,524	65,752	451,731	237,038	6,512,173	7,266,694

To this total of 7,266,694 must be added:

Pupils of lay or religious Private schools	206,961
Schools for blind, deaf and dumb	958
Non-Christian religious schools	329,585
Not classified in all above	233,911
Final Grand Total	8,038,109

The total as given on preceding page for 1912 by the Russian Year Book was 8,030,088, a fairly close agreement.

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[1]Exclusive of the cities of Petrograd, Kronstadt and Baku, as well as the governments of Warsaw and Tiflis and the Province of Kamchatka.

[2]Middle and Primary Special Schools.

(F) Statistics of University Attendance:

There are ten universities in Russia with the following distribution of students and faculties of study:

	Approximate Attendance	
	1912	1905
Moscow	9,942	5,489
Petrograd	8,446	4,508
Kieff	4,098	3,003
Kharkoff	5,274	1,660
Dorpat[1] (Yurieff)	2,749	1,766
Warsaw[2]	1,556	1,556
Kazan	3,484	1,255
Odessa	3,193	2,066
Tomsk	1,347	779
Saratov	197	(Founded 1909)
	40,286	22,082

[1]Removed to Rostov on the Volga.

[2]Removed to Saratov on the Volga.

(*Darlington and Russian Year Book* 1916)

Thus, in 1912, there were 40,286 students and in 1905, 22,082 plus 1,167 auditors, total 23,249.

These were distributed as follows:

	1911	1905
Jurisprudence	15,254	9,063
Physico-math.	9,859	5,842
Medical	9,385	5,144
Hist-Philolog.	3,384	1,619
Oriental Lang.	184	267*
Divinity	126	147**

*(Petrograd only?)

**(Dorpat only? Lutheran)

The religion of these students was as follows: (1911)

Greek Catholic	27,605
Jewish	3,602
Roman Catholic	2,768

(*Darlington and Russian Year Book,* 1916)

In addition to the above universities there are three others founded recently for which statistics of attendance are not at present available. These are:

Shaniavsky (General Alphonse), founded 1908 (?) by funds from the General after whom it is named.

Women's University at Petrograd, founded 1916. (With power to confer the doctorate.)

Perm University, founded 1917.

Total number of University students January 1, 1914..... 39,027

(*Statesmen's Year Book,* 1918)

(G) Educational Budget for 1916:

	Roubles Distributed.
Ministry of Education	165,159,780
(a) Scientific Societies	2,868,760
(b) Universities	10,687,760
(c) Secondary and Special	38,477,337
(d) Primary	72,336,609
(e) Teaching Staff	3,686,158
(f) Buildings and Repairs	11,697,223
Ministry of Interior	446,435
Holy Synod Church Schools	22,152,766
Ministry of Finance (Art and Education)	132,328
Ministry of Justice	967,977
Ways of Communication	1,056,856
Commerce and Industry (Science and Education)	4,586,724
Ministry of Agriculture	9,380,975
Ministry of War	20,864,803
Ministry of Marine	2,331,803
Grand Total	246,580,415

Rouble in normal times is about $0.50.

(*Russian Year Book,* 1916.)

General Remarks in Explanation of Above Budgets:

The present and past organization of education in Russia has been in the hands not only of the Ministry of Education, but also subject to the control of other Ministries. In general, the Ministry of Education (Public) has had control of what are called institutions of "general" education,—

whereas the so-called "special" institutions have been under the supervision of those particular Departments of State most interested in their development and success.

Thus, the universities, gymnasia, pro-gymnasia, real schools, and a part (minor %) of the primary schools are administered by the Ministry of Public Education, (Ministerstvo Narodnago Prosvestcheniia). The theological academies and seminaries are under the Holy Synod, commercial schools under Ministry of Finance, engineering schools under Ministry of Ways of Communication, etc. But the Ministry of Public Instruction has also control of most of the intermediate and primary technical and trade schools and some places of "general" education are not under its control. More detail of this will be given under the separate treatment of the several types of schools. The following table will give an idea of the administration of primary schools.

(H) Administration of Primary Schools, 1898:

Ministry of	Schools	Teachers	Scholars
Public Instruction	37,046	84,121	2,650,058*
Holy Synod	40,028	67,907	1,476,124*
War	848	1,058	46,420
Interior	553	1,102	20,510
Department of Institutions of Empress Maria	153	210	5,097
Imperial Philanthropic Society	40	179	2,822
Court and Domains	23	63	1,599
Finance	4	12	237
Marine	4	?	379
TOTAL	78,699	154,652	4,203,246

*In 1904, under control of the Ministry of Public Instruction were 3,200,835 children, and under the Holy Synod, 1902, 1,782,883.

(*Quoted by Darlington as from the official statements of the Ministry of Public Instruction.*)

To supplement the preceding table (H), the Statesman's Year Book for 1918 gives the following figures as from the Census of 1911:
Control of Elementary Schools,—January, 1911:

	Schools	Teachers	Scholars
Ministry of Public Instruction	59,682	130,019	4,186,078
Holy Synod	37,922	66,525	1,793,429
All others	2,691	6,729	201,003
Total	100,295	203,273	6,180,510

A study of Table (H) brings out the following—

	Schools %	Teachers %	Scholars %
Ministry of Public Instruction	47.1	54.4	63.0
Holy Synod	50.9	43.9	35.1
All other	2.0	1.7	1.9

ALSO of all above schools 1,785 or 2.3% were primary schools for adults, attended by 89,045 persons, men and women.

ALSO in the Russian Primary Schools:

As a whole, there is one teacher for each	27.2 scholars
Ministry of Public Instruction, one teacher for each	31.5 scholars
Holy Synod, one teacher for each	22. scholars
All other, one teacher for each	29.4 scholars

ALSO, the average number of scholars in each Primary School is: In all Russia, 53.4; Ministry of Public Instruction, 71.5; Holy Synod, 36.9; All others, 47.4.

Of the total of 4,203,246 pupils of the above table for the year 1898, 75% were males and 25% females. (Approximate.) Of the total of 76,914 schools attended by children, 90% were in the country and only 10% in the towns.

(*Darlington.*)

Still later and more official figures are given for the Primary Schools (under the M. P. E. only) in an article in the Review of Reviews for July, 1916. This purports to be extracts from the Report of the Ministry of Public Education of its activity from 1911 to 1915. In comparing these figures with those of the preceding two tables it must be remembered that here we are speaking of the primary schools of one Ministry only. This report states that on January 1, 1915, there were 80,801 elementary schools, 71,795 in towns and 9,006 rural. This is an increase of 32.3% since 1911, and several times the increase in % of population. The number of pupils in these schools on the same date was 5,942,000, an increase of 35.7% over those of 1911. (Given as 4,411,000.) The increase of girl pupils in rural districts was 47%. For these schools there were, in 1915, 146,000 teachers, an increase of 38.6%, giving 40.7 pupils per teacher. In 1911, the ratio of male to female teacher was 43.5%, but in 1915 only 37%, showing a gain in the proportionate number of women teaching in the public elementary schools under the Ministry of Public Education. This later ratio becomes 30% in those governments with Zemstvos, and 56% in those without.

Statistics of Middle Schools, January, 1914 (*St's Year Book,* 1918)

No. of Schools		No. of Pupils.
441	Gymnasia	147,751
29	Pro-Gymnasia	4,359
284	Real Schools	80,800
33	Normal Schools	1,249
122	Normal Seminaries	19,190
837	Girls Gymnasia	341,637
92	Girls Pro-Gymnasia	11,940
29	Cadet Corps	29,646
35	Gymnasia of Empress Marie (1912)	17,166
34	Institutions of Empress Marie (1912)	9,562
57	Seminaries (1913)	22,311

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MONUMENTS

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Professor of English

Most of the monuments which we erect in order to memorialize great men or signal events are true to the primitive or root meaning of the word, that is, they are warnings. How many of the statues or busts holding in hard permanence the features or forms of their celebrated subjects incite us to veneration or emulation? There are many noble portrait busts of Roman workmanship, but they merely interest where Greek sculpture bodying forth the abstract or the beautiful actually inspires. The Greeks create an illusion of a world we have never beheld but always desired, and once under their spell we are made forever homesick in this imperfect world of our own feverish, meddlesome handiwork. The Romans were as practical in their attempts to cheat oblivion as the Greeks were idealistic. The Romans taught us the first lessons in government on a large scale, the Greeks taught us the first lessons in the eternity of art. If we in this our dawn of a new era in history, an era of reconstruction the most vital and far-reaching in human history, can combine the good sense of the Romans with the intuition of the Greeks, we shall have done more than bury the tragedy of the past six years, we shall for all time have rendered sacred the memory of the martyrs.

What is it, then, that induced so many millions of men to offer what was most precious to them, their youth, their hopes, their lives? Surely not the safety and security of the people of their own generation, surely not the love of glory and distinction, impelled our American men to their task—all the more difficult because a democracy unable to save itself by voluntary service was driven to invoke conscription. No, those men went to war to defeat the gospel of violence, to conquer tyranny, to end for all time war itself. Whatever enemy atrocities still burn our memories, whatever earlier territorial robberies may now be righted, we must always bear in mind that the great purpose of American intervention was that of establishing peace and justice among the nations of the earth. The scale on which the conflict was waged was proportioned to the vastness of that design. What at

first appeared the rivalry of national ambitions was gradually lost in the grandeur of a worldwide crusade. For Americans ever to lose sight of the principle for which they fought—and every American of the one hundred millions worthy the name fought here in spirit or daily task as truly as the men in France—is to be false to those who died, wasteful of the treasure so dearly gained. Peace, the horror of war, the hatred of violence, was the soul of our enterprise.

The old Roman historian, Sallust, wisely says that heroes of action in order to attain renown and be remembered must find suitable masters of diction, for if the deeds are not adequately recorded or artistically celebrated, what is more certain than that the most brilliant performance will die within a generation or two? And this gives one a sense of the pathetic failure of

storied urn or animated bust

to immortalize the names and achievements of men. Canny old Cicero, too, when he had stamped out the conspiracy of Catiline, was on his guard against the futility of the marble breastwork against the assaults of time, and, as the capital of the world was filled with memorials in stone, he proudly declined any such expression of thanks from the city as less worthy men might easily obtain. While, therefore, we may not dare to deny the right of actors in the struggle and of grateful cities to erect statues of heroes, sad experience teaches us that only ideas and emotions made memorable by the supreme effort of some form of art or philanthropy, endure. Unless the record in stone or story equal the original deed, it is soon a forgotten yesterday, soon the hard food of the lean and haggard antiquarian. Less than ever has personal fame significance, more than ever community welfare becomes paramount.

If one lesson needs to be emphasized to prove our disdain and victory over the German gospel of might, it is the lesson that violence defeats itself, that a defensive might is the only justifiable might. We should, however, not fall into the criminal error of having no power to aid ourselves or our weaker friends if they be attacked. If aggressive might is a moral negative, unresisting weakness is no better. There are and, I am sorry to believe, there always will be crises in human affairs when violence that threatens order must be met by the only answer it understands, violence. Nor is the gospel confined to cannon. It is as reprehensible to force our ideas upon a subject and unwilling people by the aid of guns as to mutilate them in battle formation by machine fire; and is it any less abominable to use distorted acts and deliberate calumny and to spread a lying propaganda in

foreign lands as Germany did in America? The nefarious plots that succeeded with venal leaders and ignorant peasants in Russia, failed in this country. The new weapon was useless in a country where the poorer classes were enlightened and where they were not imprisoned within the narrow bounds of their own foreign language. Wherever foreigners had a fair knowledge of English, they were not easily moved to insurrection. The light of intelligence is our great hope against the dark suggestions of force.

Now is there any possible doubt as to the best means of kindling the light of intelligence? We may never again have so fortunate a chance to prove the power of education. Somebody may say that the most dangerous agitators are educated men and women. Somebody may say that the most contemptible figures in the early days of the war were the ninety-three German professors who signed the famous tissues of falsehoods and called them a manifesto upon their word of honor. When such men counsel violence and publish lies, their education needs to be called into question. Technically and professionally masters in their various departments, they had neglected the moral values. Turning their faces away from character and honesty and purpose in their state, their appeal was not to reason and judgment but to hatred and passion. They betrayed education when they trampled upon simple morality and prostituted their eminent talents to a policy of selfish and merciless conquest. What has been the net result? The criminal exploiters of Russia, whether American dilettants or German officers or Russian desperadoes, are repudiated the world over at the bar of public opinion. The countries that bore them and gave them their liberty, they would insolently enslave, they would institute their own tyrannies under the mask and guise of democracy. These men are knaves and sophists. They promise gifts to robbers and they employ eloquent arguments upon modes of conduct that disgrace human beings. The mania of imperial Germany to dominate the earth is no different from the mania of these fanatical and tyrannical demagogs to destroy civilization by terrorism. It is an easy matter to destroy. It is an easy matter to apply the torch and have a conflagration. It is a difficult task to keep a lighted torch in the air safe from things that quickly take fire.

Education in America looks with scorn upon these self-appointed upsetters of the social order. If materialism and greed are at the root of our present evils, violence and hatred and haste are the worst measures possible to reconstruct our world. If our ideas of property require readjustment, murderers and brigands are hardly the ones to

do the job. In fact, they have shown plainly in Russia and Germany all the greed they condemned in their former masters. We must seek the truth in economy, not in class license of either capitalists or workingmen. We must bring men together in sympathy and in a spirit of mutual give-and-take. This can be done only by the spread of knowledge and by the invention of ways of accommodation based upon a genuine desire to end the struggle of interests. We must inspire tolerance, not multiply laws. There are no problems in human society that cannot be solved by patience, forbearance, and generosity; and they can never be solved by ignorance, envy, and malice. If the minds of men must be enlightened, their hearts must be purified and broadened. Even big business needs to be bigger and to be better educated. If we could only realize the desire of the less fortunate for a good understanding with their industrial masters, the latter would endow schools and colleges the country over. The endowments would pay them a thousand per cent materially and spiritually on their investment.

The men of power will not endow schools and colleges, we are told. The whole story of the last four years refutes this charge. Men have been revealed to themselves. Never before was so much demanded of Americans as in these times, and never have they risen without regard to class so steadily and so confidently. The rich gave munificently and the poor gave even more grandly than the rich and both were united in the joy of worthy purpose. Everybody has come to see the necessity for reforming and re-arranging social relations. The fact that the tremendous needs of the new age fall within our day and generation, argues that we are the ones to satisfy those needs. Is it not a commonplace of history that when a special kind of man is required, that kind of man by God's sleight-of-hand steps forth ready to cope with opposition and doubt? In every community there are fortunate leaders trained by their tasks of the war who, once awake to the needs of their own communities and convinced of the right way to meet the needs, will respond as splendidly as they did when bleeding Belgium and starving France and wounded England cried aloud. They will reflect that if their hearts could not endure the sight of bodily torture and suffering, their minds will not rest until America leads the world in fitting her citizens of every race and every creed with those ideas and those principles which if more widely spread would have caused an earlier termination to the struggle.

To cite but one factor in our mental conflict and bitter misunderstandings, who doubts that if English had been better known, many

a city would not have passed thru the uncertainty and despair preceding our entry into the war? Schools that perpetuate the ideas, the conventions, the prejudices, the separation of groups of foreigners, must abandon languages interfering with the teaching of the duties and privileges of American citizenship. This change must be effected, however, not in a rude and bigoted manner, but with tact and sympathy. Compulsion after the discredited and tragic fashion of Prussia in Alsace must not blot our record. And we should remind ourselves that this matter of language is not merely a matter of handy communication, of easy exchange of commodities, of uttering material needs, it is a matter of giving foreigners the very breath of American life. It means much to be understood, it means more to understand. And until the stranger can talk freely with his American brother, and can easily learn to modify his mode of living and thinking, and can be made to feel under obligation to our institutions, the mighty body politic can not be a sound and healthy body.

English is not the only factor to be reckoned with. Politics is in a fair condition to be reformed. Politics should be far more freely discussed and more honestly taught. One of the perils most to be avoided is the too common manipulation of groups of ignorant citizens. The appeals by professional liars posing as public men to the Irish, Italian, or Polish ought to be impossible. Similarly, the appeals by fanatics—often with good intention and all the more perilous for that reason—to the labor class or the "intelligent" class or the woman suffrage class, must be tested by their certain promotion of the community welfare. Now that the war is over, we must promptly return to free speech and free discussion. As people grow intelligent there can not be too much open discussion. We have demagogs because we have mobs. We have anarchistic agitators because men's passions, when cunningly stimulated, outrun the movements of their minds. The larger the family of nations becomes, the stricter the duty to educate its members to a sense of responsibility and to a joy in helping it keep up the family honor. Education must play a larger part than ever before in cleansing and elevating the political side of our complex lives. We should begin at once to make political service a high and worthy career, open without reserve to youthful ambition, the reward of noble impulse and trained capacity.

From the talk about education we are led to suppose much that is misleading. We flatter ourselves that we have popular education because of the decrease of illiteracy. With more than eight per cent adult illiterates or eight and one-half million people, we must admit

that we have made only a start. Even with elementary education solved for old and young, we have made only a start. Ezra Cornell's humane ambition to open the doors of his college to every one desirous of higher learning, ought to be the ambition of every community of two hundred thousand inhabitants. Unless the elementary and preparatory periods are universally cared for and made compulsory, we shall go on (as we have been doing so long by our short-sighted methods) swelling the ranks of envious incompetents and capitalizing the assassins of order and progress. The percentage of elementary pupils who reach college is a disgrace to an enlightened nation. To be sure the clever conservative quotes Emerson on the uselessness of trying to educate fools. Tennyson was wiser and shrewder when he said

> 'Tis better to have loved and lost
> Than never to have loved at all.

In the economic and industrial scheme of things it is better to waste a thousand ordinary mortals than to lose one spirit of special gifts which would have been submerged and lost thru lack of opportunity. In fact, the citizen who dares to withhold from others younger than himself the advantages of education has in these days no moral ground of defence. No amount of national wealth compares for one moment with the asset of widespread enlightenment and aspiration, of highly trained ability and enthusiasm. We have taken our stand to emancipate all men from political servitude. Many of them have slowly caught the meaning of our strange interest in them. Shall we leave them paupers in mind while we plump their bodies?

Slow-coach objects that this is rather a large contract, this reforming the social order and running the universe. It is a large contract indeed, but it is not too large for America. A hundred years ago Daniel Webster proclaimed America's duty as the leader of democracies thruout the world. We are missionaries whether or not we wish to be so. To be leaders we need at once to prepare this generation to do its work. The tragic convulsion of 1914 has shocked us into entirely new sets of ideas, some valuable, some abominable. We are no longer an infant nation needing the paternal warnings of the wise and prudent Father of our Country. The nations arising in devastated Europe are the infant nations. They need us. And could they have chosen a more dramatic hour in history? When these infant nations make their appearance, women in every progressive country on earth are for the first time receiving the franchise and are being

summoned to aid weak and ailing humanity. Was there ever before such an opportunity vouchsafed to women to mother the world? Was it destiny that baptized the Red Cross? Are not the hands of fate outstretched and begging us to nourish and strengthen, to teach and guide the children of a new dispensation? The best way to answer the appeal is to render ourselves suitable and acceptable for the mighty mission before us.

That mission coincides with the present discussion in every community about the best way to rear monuments that we may not forget those who have suffered and died. Shall we put our treasure and faith into the traditional statue? Shall we again exalt old standards of glory? Shall we draw distinctions of heroism and single out individuals and petrify their physical shape and plant them in public squares and go about our business and murmur to ourselves: "There, thank the Lord, that's done"? Or on the other hand, shall we perpetuate the ideas and motives for which the men fought? Then every city and town requires to study what is its greatest need and what is the surest plan to meet that need. In general, those grown-up workers who secure sudden leisure thru the operation of fewer hours of service must be provided with ready and profitable ways of filling up that leisure, while the younger generation must be trained to enjoy an enlightened leisure. The latter must be taught and induced to work joyously to the limit of their capacity and desire because they are assured of rest and wholesome diversions. Some communities will wisely extend the opportunities for healthful recreation and sport; some will proceed to eliminate modern ugliness in cities by civic centers; some will provide for the wider use of the best music at public expense; some will extend their park systems and so expand the lungs of their cities; some will lay down solid roads and highways to make themselves accessible; some will invent bold, broad towers to welcome the new citizens of the air.

In all these projects, however, the soul of our enterprise should be clearly visible. The springs of action itself are almost negative beside the positive glory of setting in motion a noble idea. We do ourselves a grave injustice to call idealists visionaries. Upon the waste and ruins of war no thoughtful person will ever again question the power of ideas and discredit the motives and honor of this vast and slow-moving republic of free citizens. Nothing that endures materially can compare for permanency with the ideas and benevolent dreams and unrealized paradises of the busily inventing minds of men. The

impalpable and the impossible are the stuff of achievement and of immortality. To spend one's days in bringing about what can be done in a commonplace and routine market-square world, is a fool's or a sluggard's job. It is a prophet's and martyr's destiny to sight the shining goal, distant and dim, and to die confident at the last that the faint promise will be luminous because he kept alive the faith in himself and in his fellowmen. This is the high consummation to one's life, once to know that our gifts of mind and spirit are worse than naught, if we deny our fellows the profit of them. The whole wide world has been calling upon America to feed and clothe it; it will not stop with this, soon it will call for all the resources of our spirits to save ourselves and it. Truly it is an epic moment of history. How shall we frame our answer? Not in silent monuments of stone, but in eager, passionate efforts to build better than ever our fathers built.

THE WORLD OF REASON AND THE ORIGINAL NATURE OF MAN

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I.

The times are ripe, it would seem, for another Rousseau to frame a new Discourse on the Arts and Sciences and their relation to the eternal verities of human nature. Signs are not wanting that we too, some of us, find ourselves in somewhat the same position of critical dissatisfaction and whole-hearted antagonism with the ideal of a descriptive system of static experiences as the sum and substance of man and nature. Yet times and society have changed; we cannot rush with mad enthusiasm into positions found untenable by our predecessors; we cannot eulogize and idealistically accept a "state of nature", itself uncritically depicted, as a solace for our unrealized aims and aspirations. A new revaluation is sorely needed, one that will again bring unity into the present discord; a productive not a contemplative unity, involving all that the "new knowledge" has brought us, but transposing it into human and social forms. We need, as it were, to tidy up the universe and make it once more a home for men and women, glad to find it homelike, and eager to improve it for those who are to follow. No mere jeremiad will do; we need a constructive reinterpretation of the nature of culture and its relation to the human, all-too-human nature that has produced it or, rather, that has grown up with it. And the "world-of-reason" is both the point of attack and the hope of salvation; a point of attack in that it has actually ignored values and facts in its research; the hope of salvation in that it might be and, indeed, is in the process of becoming a more human instrument in the larger sense of the word "human". The following, then, is a brief sketch of the chapter of short-comings, and an indication of the possibilities.

II.

Every age and period thinks itself and, indeed, is an age or a period of transition. Every age is peculiar in some respects and differs from that which has preceded and that which is to follow, but the fact too often forgotten is the real meaning of the term "transition". It implies far more of continuity than is commonly appreciated, far more of shared values with both times past and to come, far more of control by the past and the future than is wont to be acknowledged. History depicts a swaying of values and emphases, a selective and differential weighting of parts of the past by each successive present, but no absolute creation out of the void, no conjuring forth out of empty time.

The present is in no sense different from such other transitional eras as history has recovered for us. A bit more rough, perhaps, in its treatment of older, inherited ideas and ideals, a bit more confident of getting along with little or no suggestions from the past, a bit more indifferent in some quarters to the future but, all in all, a typical era of transition. We lack a smug complacency to sit down in the shadows of the accomplishments of our predecessors, but show all the more, perhaps, a complacency of indifference to what they have willed us. We are a bit disillusioned, a bit saddened, unconsciously, by the failure of the grandiose dreams and aspirations of the beginnings of the larger age in which we live, and in the breaking up of which we find ourselves somewhat bewildered. The "century of hope" has proven in need of more than good intentions, and ardent dreams of conquering nature have turned into a bitter realization that we too are "nature" and that we have hardly begun our self-discipline. In our preoccupation with what we have chosen to call the "world of reason", in our over zealous attention to things around us, we have forgotten, seemingly, that we ourselves are a part of those very things, and in our efforts to be pure, disembodied, disinterested intelligences describing a world of facts have lost the warm familiar world of human things.

It has all come about so gradually, all but the realization. Little by little the de-humanized, impersonal world of pure reason and abstract science has grown up, little by little new fields of research have yielded, properly enough, their precincts to the new method, little by little all things were becoming congeries of quantities, more or less exactly determined;—innate ideas, substances, selves, causality, time and space all were shown to be illusions;—but in their place was put

nothing more satisfactory, nothing more illuminating; indeed, nothing at all. Yet the movement started, as we shall see, with other than merely descriptive and quantitative ideals; measurement and description was to be *for* something, was to be in the service of something, was but to lead to something better, not to be in and for itself, not merely to lead to finer and ever finer exactness in the same process,—a reign of facts, a rule of the laws describing the facts and their relations, a preoccupation with what supposedly, in the light of the method, *"is"*, and little or no concern with what *might be,* what *ought to be,* what, in a moment of inspiration and determination, *we* determine *must be.* I am not calling in question, here, the presuppositions of that method and that reign, though that, too, will have to be considered, but merely the results. "We shall be able," wrote Descartes, "to find an art, by which, knowing the force and action of fire, water, air, stars, the heavens and all other objects, as clearly as we know the various trades of our artisans, we may be able to employ them in the same way for their appropriate uses and make ourselves the masters and possessors of nature. And this will not be solely for the pleasure of enjoying with ease and by ingenious devices all the good things of the world, but principally for the preservation and improvement of all human health, which is both the foundation of all other goods and the means of strengthening and quickening the spirit itself". We have come to know the forces; we have, in a sense, mastered nature; but as for the rest of the program, we have, I contend, fallen far short.

A brief survey of the origin and the subsequent development and modification of the point of view just depicted in the quotation from Descartes will help to orientate the present problem and the possibilities of our modern era in the way of new departures and new emphases. Again the similarities of different ages will be apparent; the similarities that give an air of warm familiarity and understanding, but never enough it would seem to make our contemporary issues seem other than purely contemporaneous and unique. Ignoring, as beyond the edge of our canvas, the whole empire of thought and life of the Medieval Period, we look back to the Age of Discovery; not the first such age, as we have implied, but one that, in relation to its immediate past and future was more emphatically characterized by things, people, knowledge and insight that was unfamiliar to the layman, surprising even to the learned, and fraught with possibilities, so it was felt, for the welfare and the progress of man and the world of men. We begin, then, with the period of the Fifteenth to the Seventeenth

Centuries, for with the closing of that period we find the discoveries, the new knowledge, the new theories and the new philosophies resulting in definite attitudes toward the universe as a whole and toward the nature and the life of man in that universe. The economic and the political parallel developments are of the greatest importance here as elsewhere, but we shall have to confine our attention, for the present purpose, to the more specifically general, i. e., philosophical generalizations. There was the same revolt against authority and tradition as the new knowledge and the new experience has brought to us of the modern period, the same revolt, the same turmoil, lightened for us a bit by the distance and the perspective, but as real and as human and as significant as any we have. And with characteristic human bias men sought refuge in generalizations and the world of thought.

Two fundamentally different syntheses, two radically diverse generalizations were made; one, the romantic, mystical protest, almost swallowed up in the current of the times; the other, the scientific, purely intellectual, classical jubilee. They overlap, to be sure, as thought and emotion, so-called overlap in the consciousness of the individual, but for all their overlapping, and for all the difficulty of finding pure examples, so to speak, of each of the types, the two separate tendencies existed, constantly in opposition, but with the ideal of reason and science far better enthroned in the subsequent civilization of the Age of Discovery. We shall find much, in a subsequent section, to parallel these two tendencies in our modern contemporary thought; to parallel, not to duplicate, for the modern is, after all, be he of the one or the other camp, essentially modern.

Of the two world-philosophies, the scientific was the more promising, the more forward looking, the more essentially hopeful and optimistic, engaged specifically with the world of facts and of the senses, looking little, if at all to the other world beyond the senses and the span of human life, and seeking ever and emphatically, officially and unofficially, to better that world which the senses give us. It was the philosophy of hero worship, and the hero was man; it was the philosophy of progress, and the goal was perfection; it was the philosophy of service, and the objection of devotion was, again, man. Romanticism, to be sure, also looked for the salvation of man, but it was no concrete mundane salvation, no earthly, temporary betterment, obtained by the use of thought, by the insight of theory, by the light of the understanding. Salvation, in the light of romanticism, was rather in the age-old idea and practice of retirement, or resignation, of ac-

ceptance of worldly disillusionments in the hope and the promise of better life to come. Science, thought, classicism, intellectualism, would have none of this. Here and now was to be the promised land, won, not through resignation, but through work, experiment, conquest of nature, and the harnessing of the powers of that nature in the service of man.

With the full realization of such an intellectualistic philosophy we come to the Enlightenment, the Age of Reason, in the sweep of which we still find ourselves, albeit, with some doubts and questions, not so much as to the value of that reason, as to the uses to which it has been put. It has raised bitter and numerous enemies,—idealism, and a resurrected and rejuvenated romanticism, yet it is the type of every philosophy which seeks, in part, to justify its right to existence by its fruits. But the end of the Eighteenth Century found Reason as firmly entrenched as ever, and with every promise of continuing to be dominant in the world of concrete endeavor as well as of abstract theory. Idealism, romanticism, methodism, pietism, one and all, with many contributing associates, made little or no impression; the world was reason, man was reason, reason was to be his salvation,—and the incarnation of reason was science.

Nor was this to be wondered at; romanticism and idealism but argued, spun rival theories, pointed our theoretical discrepancies in the warp and woof of the philosophy of reason,—and produced nothing. Reason at least worked, in an uncritical use of that term, reason seemingly did explain, did forecast, did control, did produce results accessible to all, usable by all, obtainable by all. Scientific apparatus, mathematical equations, laboratory experiments resulted in that enhanced control of nature, that harnessing of nature to human ends that Descartes had foretold, and with the end of the Eighteenth and the beginnings of the Nineteenth Centuries, there came yet more numerous products than the telescopes and mathematics of the earlier period had given to the world. Science, the embodiment of reason, turned itself to the work-a-day world, and industry, the very most intimate processes of human life were revolutionized. To be sure, here too, the latter part of the program and the vision of Descartes was forgotten or ignored; the full fruits, perhaps, of a whole-hearted devotion to the inherent philosophy of reason were not yet apparent. Yet in the disruption of home and guild industries, the growth of towns and the inherent problems of masses of humanity grouped in new formations and under new and untried conditions, the problem of the factory, the new problems of family life, trade internal and

external,—the seeds of modern discord were sown and well watered. Science reorganized industry; control over Nature and her processes grew with astonishing rapidly, but to the nature of the man for whom the control was ostensibly won, science as yet paid little attention in any but a highly speculative way. The industrial revolution was followed as the night the day by political and social revolution; a revolution seemingly unexpected, seemingly a surprise even to the science that had occasioned it. To Nature and her ways science had been attentive, but to the exclusion, fundamentally implied, of a corresponding examination of man, and a parallel re-direction of his energies and powers. The dualism is apparent; Man and Nature were quite evidently, in the thought of the time, separate and therefore separately mouldable; merely, as it were, contemporaneously existent, but not part and parcel of the same total universe; co-operative, but not necessarily so; partners, but not irrevocably involved in each other's vicissitudes. The implications of this dualism will be considered further in a later section; here, the fact needs but to be in mind; the first part of the whole program of science was fairly accomplished.

It must be granted, to be sure, that science has more and more turned her attention to man and things human, but in what would seem to be a very inhuman way. Mere facts of physiologic processes, mere statistics of social progress, mere insight into the facts of the drama of the change and growth of man and society, in and of themselves, as facts, lead and have led nowhere. Science, even when most intimately concerned with man as an object of its activities, seems hitherto to have left out that which is most essentially man,—his dynamic, unified activity, his interests, his ideals and purposes. The whole development of science and the point of view of reason since the political and social revolution has been in the direction of more and more intensive investigation of the older fields, together with a wider and wider extension of activity to fields earlier untouched, but always, it is here claimed, with but a few hopeful exceptions, in the interests of science as such, of reason as such; in the name of man as scientist and logician, rather than in the name of man as man, in all his diversified but co-ordinated aspects. Chemistry, geology, biology, psychology, normal and abnormal, sociology, pure and applied, art, literature and language,—one and all bear witness to the enlightening touch of science in respect to facts known and organized, facts pertaining to the past, facts accurately described in terms of reason and logic and showing the relation of each fact to its predecessors,—facts carefully

catalogued and subject to ready reference,—but facts, in and of themselves, leading nowhere. Nor have they been used, in any but the fewest of instances, as a foundation for future activity, as a basis for the enthusiastic betterment of man and society as visioned in the beginnings of the whole movement. And the reason lies, it would seem, in the underlying philosophy of the whole movement, in the dualism of man and nature previously mentioned, in the divorce of knowing and doing, in the separation of the world of man and the universe of his activity.

It must be granted, as I have said, in the beginning of the last paragraph, that science has more and more turned her attention to the field of human relationships and activities, but, as I claim, in a very inhuman way. Some illustrations of what I mean by the latter phrase, and what I imply for a better method and happier results may not be out of place here as a slight anticipation of the larger program which I shall sketch in a concluding section. Medical science, for example, has lengthened, perhaps even more than we usually realize, the span of the average man's existence;—but one point, at least, is open to argument,—whether that is in any sense a valuable service, in view of the nature of the life which human beings live. Life is not, merely in virtue of being life, therefore valuable, therefore enjoyable; on that account in and of itself worthy of being lived. Science has made it possible, by virtue of the control of disease, and the purification of water supplies, the disposal of sewage, and so on, that larger and larger communities of men and women may exist in an incredibly small section of territory,—but that fact, in and of itself, in no way makes it desirable or even tolerable to so live. Science has made it possible that a far larger percentage of children shall live after their entrance into the world;—but it is to be doubted if all such children find it worth while to be in the world to which they have, unasked, been brought. Science has made it possible to talk to foreign countries; perhaps, in the near future to other worlds, but have we anything so essentially worth while saying that the fact of saying it in a moment instead of in a month, has made the world essentially and universally better as a background for the sum total of the activities of human beings? This may, it is true, sound like pessimism and a call to return to primitive civilization, but it is most emphatically nothing of the kind. It is but an instance of applying the test to the promise of science that was of her own devising; the world can be made as the criticism suggests, but as yet there has been little or no attempt on the part of science to do so.

III.

The present, then, is the era of science, of the fact valued as a fact, of interpretation and description in terms of quantity, organization, relationships. "It is commonly held," writes Veblen in 'The Place of Science in Modern Civilization', "that modern Christendom is superior to any and all other systems of civilized life. Other ages and other cultural regions are by contrast spoken of as lower, or more archaic, or less mature. The claim is, that the modern culture is superior on the whole, not that it is the best or highest in all respects and at every point. It has, in fact, not an all-around superiority, but a superiority within a closely limited range of intellectual activities, while outside this range many other civilizations surpass that of the modern occidental peoples. ****** The modern civilized peoples are in a peculiar degree capable of an impersonal, dispassionate insight into the material facts with which mankind has to deal." Science has become the court of appeal;—facts, it would seem, are indisputable; the sincere inquirer, however, is perturbed at finding that the court of appeal,—science,—has not been quite as disinterested, as dispassionate, as broad and as thorough as first impressions and the propaganda of the partisans would indicate. The world of reason has indeed been quite thoroughly surveyed; the world of man, the province, so-called, of psychology, has yielded, too, its quota of facts; but the facts connecting them, the facts of the full, active, creative and living being are, as yet, less valued, less known, less investigated. "Other ages and other cultural regions" are indeed held to be lower, yet the estimate is based primarily on just the absence of such a system of facts; and it never occurs to anyone except, perhaps, the speculative reader and student of history, to compare the living values in terms of concrete returns to human beings associated in significant work one with another of, say, 500 B.C. and 1920. We confessedly have no art comparable with previous art; our literature is not to be ranked with that of many previous periods, nor our architecture, nor our music, nor our dress, nor, perhaps, our entire summed-up reaction to the universe as a home and a scene of adventure and progress.

Nor is the science all of one quality; there is science and "science"; for just as in previous ages the leading element of civilization was prostituted to private and un-professional ends, so too with us. We have many sciences; our natural sciences, in so far as they are science, stand in no need of criticism, the contention as regards such is that they are merely science; but when we come to estimate

and assign a place in our civilization to the parasitic growth which has grown up around the central conception, we begin to see what an uncriticized estimate of civilization by any criterion other than a thoroughly human one, can and does lead to. Where would be the "science" of palmistry, of astrology, of character-reading by bumps or features, where the "science" of business, of Christianity, unless a borrowed halo of efficiency and presumed "factness" enabled them to both establish and to conduct themselves in a civilization that worshipped the fact and the science that had established its significance? The "sciences" of law, history, advertising, are scientific rather in the borrowed and figurative sense of the term than in the nature and relations of the facts at their disposal and the ease with which such facts are controlled and organized with reference to universal and verifiable activity. We have, too, scientific socialism, the science of society, of religion, of economics,—all of them quite anxious, it would seem, to become completely scientific and equal the exactness of the natural and physical sciences. That science is of value in all these departments of activity, there is no intention of denying; but that a mere accumulation of facts, as such, is of value, is emphatically denied; the virtue will be found not in the facts, but in their application, in their use, in their control. But the ideal seems, too often, to be not such a dynamic control, but a static system of description, a formula or group of formulas which will describe in a conceptual shorthand, once for all, the nature of the universe as it appears to mind, a mind seemingly disinterested in doing anything else but describe.

Yet when we survey the social fabric that has inherited the conception of science and reason as the ideal and the goal of human activity, we are a bit at a loss to account for the quite evident turmoil and disintegration of that fabric. If science is the sum and substance of the task and province of man; if man is, by nature, training, historical inheritance and present choice, first and foremost a scientist, a surveyor of the world in the concepts of reason and in accordance with the "laws of thought", how comes it then, that he finds himself in such a strange and unsatisfactory world as even a casual survey of civilization, to-day, shows us? Is science, in the light of the evidence, historical and contemporary, to be in any sense held responsible; either directly, as the immediate cause and occasion of the existing unsatisfactory and indeed intolerable conditions, or indirectly, in that attention to matters scientific has led human activity and human devotion on a false and unfruitful path? This is indeed a shibboleth; and as

we answer we show our allegiance. From the point of view here being developed the answer is emphatically "Yes" in both senses; science has both directly precipitated the present in that it has made possible much of the recent barbarous "scientific" war, with its resultant train of evils, and indirectly, in that it has consistently, until recently, refused to consider, as worthy of scientific notice, the problem of human life in its essentially human aspects. In the world of descriptive formulae, in the huge accumulation of facts as the reason apprehends them, man and his world have disappeared.

A survey, however casual, of the present state of the social fabric shows much that will support the above contention. It is not, as has been noted several times, that science is of such a nature that it *cannot* enter into the real human problem of life in this world, but that it *has not;* it is not that science has not ministered to some human needs and demands; increased, here and there, the sum total of comforts for the class or group that could afford them; it is simply that science has not attacked the central problem of the nature and organization of life, worthy and well lived, in this universe of ours; has not seen man and nature as but two aspects of the same everlasting unity. "Perhaps", I will be answered, "this is a problem for philosophy rather than for science". "And perhaps", I retort, "it is, but it is also a problem for science".

Who are the present "saviours" of the universe? Surely not the scientists, not the logicians, not the adepts in pure reason, not the collectors of facts, not those who have most laboriously striven to add yet one more generalization to the already incredible number which we have. We find rather our self-styled "saviours" among the non-scientific, among the too radically emotional, among those who swear by "intuition", revelation, tradition, any and every principle but the principle of sufficient reason and the accumulated facts to support it. We need but to read such things as the "Communist Manifesto" of Marx, or his contributions to the papers of his period, the present utterances of Lenine and his followers, who carry on the same strain of thought and endeavor, the Preamble of the I. W. W., Sorel's "Reflections on Violence", the writings of Loria, Pouget, Bakunine, and so on in an endless succession. It is here, strangely enough, that we find little or no attention to facts,—no fact of society or of history is so refractory that these enthusiasts cannot wrest from it the meaning and the doctrine they wish, and which they have, often, conceived before the facts were woven to support it; and it is here, too, that we

find the most determined, if rash, attempt to direct the universe, the real universe of man; the attempt, motivated with the strongest of human energies to "remould it nearer to the heart's desire". It is a strange condition of affairs, but one hardly to be wondered at in the light of the development of science and the world of reason with the attendant neglect of the world of human affairs. Some quotations will be of interest.

"Our epoch", writes Marx, in the Communist Manifesto, a direct inspiration of much present social revolutionary activity, "the epoch of the bourgeoise, possesses, however, this distinctive feature; it has simplified the class antagonisms. Society, as a whole, is more and more splitting up into great hostile camps, into two great classes directly facing each other; Bourgeoisie and Proletariat". ****** And again, in the same article, "The proletarian movement is the self-conscious independent movement of the immense majority. The proletariat, the lowest stratum of the present society, cannot raise itself up, without the whole superincumbent strata of official society being sprung into the air". These utterances are, in part, the basis for an active reconstruction of society; how much "reason", how much "science" is there in them; what has science, in its really efficient representatives, to say of "classes", of "hostile camps", of the *necessity* of the destruction of the "upper" for the salvation of the "lower strata" of society? "The working classes and the employing classes have nothing in common", so reads the Preamble of the I. W. W. " ****** Between these two classes a struggle must go on until all the toilers come together on the industrial field and take and hold that which they produce by their labor. ******" This surely is the language of the emotions, of human striving, of human intention and determination, not the cool, calm, disinterested utterance of science and reason. Yet it, too, is a basis for action; for a definite attempt to do what science, it will be remembered, set out to do, when the Age of Science and of Reason first began. That much of the implied misery, much of the implied unfairness of position in life is justified, is not the point at issue here, the fact of importance is that seemingly un-science will arbitrate the world of human relationships which science has ignored in her pusuit of the unconditioned, the true as such, the everlastingly real.

Some further and still more significant quotations will show abundant ground for the conclusion of the last paragraph. "It is always the immediate relation of the owner of the conditions of produc-

tion to the immediate producers ****** in which we find the innermost secret, the hidden basis of the entire social structure ******" (Marx); "****** the final causes of all social changes and political revolutions are to be sought, not in men's brains, not in better insight into eternal truth and justice, but in changes in the modes of production and exchange, not in the *philosophy,* but in the *economics* of each particular epoch." (Engels). "It is not beliefs and ideas in general that constitute a factor in history, but only the special beliefs and ideas of the proprietary class. Beliefs and ideas were present in the hearts and minds of the slaves, the serfs and the wage-earners, but these beliefs and ideas have not had the least effect upon the march of history, for they have always been repressed by the beliefs and ideas of the patricians, the feudal lords and the capitalists". (Loria). One is well entled to call in doubt the statement that science is and has been the predominant element of the present and the past centuries, in the light of these quotations, but they represent, from the point of the present argument, an example of a conscious and bitter reaction to the world as it has come to be under the guidance of the exact sciences and the ideal of reason. Man, to be sure, is at times reasonable; but to think does not exhaust his activity, nor name all his functions.

If we seek for the philosophy of this reaction we find it, at its best perhaps, in Bergson, though Sorel too has many general principles in his Reflections. The general conclusion is clear; in the minds of the adherents of these doctrines, or in their hearts, if you prefer the phrase, the promise of science has not been fulfilled, the world has not become even approximately as the "vision of fulfilled desire" conceived it, and since science has not made the promised reconstruction, the conclusion is drawn that it cannot. The present paper, it will be remembered, also holds that science has not fulfilled its promise and its program, but not that it *cannot.* If we look for still a further type of evidence we need but read the daily papers, scan the divorce records, compare the prices of necessary commodities with the wages received, estimate in unpartisan terms the demands of the constant procession of strikers, read the reports on new millionaires, investigate the conditions obtaining at present in farming and grain producing sections, note the conditions in schools, the resignations of teachers, the disinclination to labor, the growth of radicalism seemingly for its own sake, and compare with it all the sage utterances of those who would check it all by violence, by proletarian domination, by police and army, by a new religion,—seemingly by everything but science and

scientific knowledge, or by a new adjustment of the environment and its denizens in the light of the immense collection of facts pertaining to it, and the generalizations connecting them. All the world is in flux; nothing, it would seem is to be to-morrow as it is to-day, yet each and every reformer has a new and an untried method, and nothing substantial to back him up. If ever there was a chance for science to redeem her ancient promise; if ever there was an opportunity to show once and for all her merited but hitherto abused authority, now, it would seem, is that time. But to gather more statistics of unrest, to measure more departures from the normal in terms of heredity and country of birth, to classify more kinds of heresy, will not solve the problem nor bring order to the present situation. There is needed, at this time and at this period, a projection of knowledge into the future; a determined effort, well organized and well motivated, to use all the golden knowledge that science has gathered; not this time in order to gather more knowledge, but to effect a change, a change both in human beings, and a change in the nature of the social-human-world in which the human beings live. The former is education, the latter sociology which, if not sciences, are certainly directive enterprises which can use all that science has gathered in her survey of the world. What might be done, in part, is outlined in a later section.

IV.

It seems necessary, next, to proceed to the philosophy, as it justly may be called, of the method and the world of reason and science, and examine the inherent and underlying principles of both the method and the superstructure which has been reared upon them; the principles which, consciously or unconsciously, have been utilized by and indeed dominated the individual thinker in the making of his contributions to the sum total of purely scientific knowledge, when he has, as it were, put off his fleshly inheritance, and become, in theory at least, reason incarnate, a priest of pure knowledge. It is a strange world they depict, and a strange method they follow; and we see, quite readily, in their emphases and their omissions, an example of that general characteristic of the flow of history, where age after age inherits, critically picks over the heritage and proceeds to enjoy the fruitage of some one or two treasures to the ignoring of the others. We have traced, in broad outline, the rise and growth of the spirit and the age of science and the world of reason, and it remains here,

to evaluate it at its zenith and in its full flower, before, in the course of the present, it becomes more truly what it seems in process of becoming,—a new age of man, a new Enlightenment. Not lightly has the present conceptual world of reason and science been called the "Nightmare World", the "Alien World", nor were the coiners of these phrases mere romantic, unappreciative rebels and heretics, but one a scientist and the other a philosopher, neither unaware of the facts and the theories in question. We are, indeed, in a "cave", but it is of our own digging.

The world of reason is, indeed, a curious world; quantity, relationship of one quantity to another, an external description of concatenated events, a world with neither First Cause, nor Final End, a world entirely necessary, and from the beginning quite definitely to be as it now actually is, and with every event of the future quite as definitely a necessary sequent to the present total situation and the events which will, also necessarily, come in between; a world in which reformers and their efforts are as necessary an element as the inevitable failure of their apparently vital efforts, a world where success and failure are determined in advance, but where, curiously enough, the element of striving and loafing is a determined part of the determined sum total,—a world, in short, that is not at all the world which naive inspection and life long unphilosophical experience declare it to be. A world of reason, but in another sense a very unreasonable place! Yet on what has such a conclusion been based; what is the nature of the evidence which has shown our universe to be so emphatically and undoubtedly a most undesirable home for human activity,—where yet that human activity is a seemingly necessary part of the whole? Nowhere has science *found* a real cause, nowhere has she definitely and unmistakably *shown* the necessary connection between even two events;—science has only description to show, to point proudly to as the sum and substance of the centuries of work and organization; a description, to be sure, which enables us to find our way about in the manifold details and intricacies of the universe and its many perplexities, but which far from being a final and irrevocable revelation of the nature of the universe is but a guide book to its curiosities and its points of interest and value. It is, in a sense, a huge card catalogue of the things which one should know before undertaking a serious project; things one should *know,* to be sure, but the knowledge of which does not in any sense exhaust the full meaning of a project undertaken. The "facts", then, of science are not at issue,

and are indeed among the most valuable of the inheritances of the present era, but in the facts, search as we will, we do not find the man.

With the facts then we have no quarrel; though, as is apparent, they are not quite as immutable as it would sometimes appear, nor is the present less characterized by changes in the "facts" than previous eras. We need not, to carry this to extreme, assert that the facts are as we make them, as we designedly find them; it is sufficient to realize that we do find them very often different to-day and to-morrow, for more important and fundamental issues are involved. Science is, in the main, at least in its earlier stages in any given field of activity, analytical rather than synthetic or constructive, and in so being, has, undesignedly perhaps, but none the less thoroughly investigated and described not the Universe as a whole, but selected portions thereof, neglecting many areas, until but recently, and some even to the present moment. Yet the world does not seemingly function as such a mere conglomeration of associated but uncoordinated parts, but as a whole, and the investigation which draws conclusions about the sum total from an examination of parts, is either false in its conclusions, or must establish the verity of the principle whereby it may judge of all from a part. Knowledge of a *this* plus a *that* plus a *something else,* however accurate our knowledge of each, insofar as it really is such separate knowledge, tells us nothing of their cooperative meaning and associated activity. This particular habit of separate investigations, with resultant accumulations of facts in separate departments of research, is emphatically open to question in the special separation of man and nature. As science and reason would have it, Nature is a field for investigation by Man, both being conceived, though not always directly and overtly stated as separate, and separably subject to investigation. Man and Nature, as stated in an earlier section, are viewed as partners in a seemingly transitory sense, as not at all merely opposite aspects of an inseparable and evolved unity, each aspect of which has both contributed and received modifications in the course of their mutual and differential evolution. The "facts" of nature are such "facts" with reference to the human nature which is interested in them and which investigates them, and were our sense organs different, say, it is at least conceivable, that the facts would be different to the observer. We need but to remember the "personal equation" of the astronomer, or indeed of any other observer; we need but to try out a group of men and women in the psychologic laboratory to see the divergent responses to one and the same "fact" placed before

them for observation. Facts are facts in relation to an observer, a human being, and when stripped of all such human reference and made, as it were, "facts in themselves", they become ipso facto, devoid of meaning, until again brought into human relationship via some given human purpose, some plan, some intention which, while using the fact, colors it with things quite other than the merely descriptive and numerical characteristics of the world of pure reason. In the mind of a human being with a purpose ahead of him, facts become "humanized" and quite other than "facts in themselves", and it is in this wider sense of the word facts that science may yet come to be the actual creator of the promised world of the earlier period; but much more reinterpretation and much more reorganization lies bebetween than is roughly indicated above.

But this method of isolation and consequent loss of human meaning has led to even graver consequences in the division of the nature of the human being himself into a so-called "knowing" or intellectual ability plus an emotional activity plus sundry other abilities and capacities or aspects of being, and then ranking as of first and prime importance the results and the products of the "knowing" faculty. This knowing faculty, so it would seem, in the light of the edicts of the world of reason, is the one and only action or ability of a human being which gives as a result knowledge of the universe; all else is "subjective", transitory, unsatisfactory, temporary, personal, and mingled with error and falsehood. When we can measure, describe, and in a wholly external and objective way be conscious of an object, then and only then do we truly know it; such at least is the statement of the followers of the world of reason. But let our emotions, our wishes, desires and impulses enter into an investigation, or let an effort to ascertain the truth become confused with traces of such things, and the result is,—nothing; nothing, at least, in the eyes of science and the world of reason. Yet when we survey the course of the evolution of man from the lower animals, we find no place at which there has been a definite creation of intellect; rather a gradual growth in the complexity of both structure and function, where increased complexity of structure has been accompanied by a correlated growth of complexity in behavior, so that we can, very properly, doubt that worms, say, exhibit much in the way of syllogistic reasoning, but are quite at a loss to show when and where a definite beginning was made in intellectual forms of behavior toward the universe. Intellect, that is, is rather a result, a gradual accumulation of many other kinds of behavior, with a cor-

responding parallel increase in the delicacy and retentiveness of nerve tissue; with the result that in man, as a late product of evolutionary development, the process is so complex that we call it thinking, and endow him with a "mind". But all life has conduct, of one sort or another; all life makes some adjustments, has some sensitivity, and we can hardly deny to such life that, in some sense, and a very fundamental sense at that, it "knows" the universe. It reacts, it accomplishes purposes, it survives, it perishes, it propagates,—and in a less complex and detailed way, in a less descriptive and conceptual sense, it has "knowledge". We can hardly go back to the days of Descartes and call all but human beings mere automatons, mere machines. On any such basis of reasoning we would need include the thinking human being also;—nor to be sure, has science been found unwilling to agree to this. When we smell a rose, when we handle it, when we buy it to decorate our own or someone's else person, do we not know it; or is our knowledge of it exhausted by a description of it in terms of light vibrations, the molecular weight of its component parts, the formula of its perfume, the weight it has as an individual specimen?

Does reacting to it as an object of beauty, as something that we think gives us "hay fever", as something that expresses our love or devotion,—does none of this have any significance in the world of human affairs, and is none of this knowledge, because it is so intimate, so personal, so transitory, so mingled with the human and the social?

We live in a world of beings who have inherited, from ancestors reaching back to the beginning of life, many "action patterns", many types of conduct, and the intellectual is but one among them; nor is the exercise or functioning of it, nor any other of them, in and of itself the purpose of life. We do not live to think, we do not live to express emotions, we do not live either to gather knowledge or to be played on by the beauty or the horror of life; rather we think, if we can, in order to preserve the life we have not asked for; we react emotionally, perhaps, for the same sage reason, though the reason is an afterthought.

One other consideration and our brief examination of the inherent principles of science and the world of reason must give place to more constructive arguments. In his examination and discussion of Hume, Huxley writes, in part as follows: "If the materialist affirms that the universe and all its phenomena are resolvable into matter and motion, Berkeley replies, 'True; but what you call matter and motion are known to us only as forms of consciousness; their being is to be conceived or known; and the existence of a state of conscious-

ness, apart from a thinking mind, is a contradiction in terms'. I conceive that this reasoning is irrefragable. And therefore, if I were obliged to choose between absolute materialism and absolute idealism, I should feel compelled to accept the latter alternative". And surely Huxley was hard-headed enough as a scientist! Yet the scientist posits, as it were, an independent world of "facts in themselves", facts which are as they are regardless of the human beings who have access to them and who have laboriously become acquainted with them. Yet the simple attempt to become aware or conscious of the facts in other than the normal human way, via the sense organs and the whole apparatus of the human mechanism, is not only impossible, but ludicrous even to state. Imagine trying to steal a look around the corner and see what the world was like when you were really not looking at it,—when it wasn't the world after all, but a strange something that you were trying to be conscious of without really being so! The world is a human world after all.

To sum up, then; and without following out the very evident metaphysical implications which bristle throughout the whole argument, and which would be very much out of place in a simple plea for a revaluation of present values, we may and, indeed, must, think of science as a closed body of facts and with an appropriate method, which is descriptive of a limited portion of the universe (physical nature), and which is inherently a system of truth about that limited sphere in its isolated aspect as part of a larger whole (the world of human beings), and which is of the greatest value in so far as it no longer remains such an isolated system but is brought over into intimate contact and affiliation with the other world of intimate human fears, hopes, wishes and purposes. The solution for the present state of affairs is not the opposite one of inexactness, of unscience, of superstitution, or recrudescence of the primitive emotional reaction to the world, not a world of hit or miss, but a gathering of still new facts and the making of still newer organizations of the facts both new and old; an organization that looks to use and not mere accumulation; a use that is not merely quantitative, but also qualitative, one that seeks not merely to prolong life but to make it better; one that seeks not merely to have more and stronger children brought into the world, but which is as seriously and as objectively concerned with making it a better world in which to have a long and healthy life. This involves, needless to say, a consideration of psychology, a study of the nature of human nature, a valuation of all things in terms of that nature which we have, one and all of us, inherited from ages long

since past, and which we will in turn hand down to countless generations to come. We must reconstruct the world, but in terms not merely of intellect, but of emotion, reflex, instinct, wishes, hopes and fears. We must make a human world for human beings to dwell in.

V.

Every once in a while, in the course of the swaying of values and emphases which we have said to be one of the characteristics of history, there comes a return to, an interest in and a concern for man,—for man in a particularly human sense, for man as creator, sufferer, hero and promise of the future as well as inheritor and trustee of the past. In such periods, when the pendulum of opinion and emotion swings too far, the more sober and objective characteristics and accomplishments of the previous period tend to become less significant, less authoritative, less regulative of conduct and enterprise, and in so far as they do so, we may well picture the "God of Things as They Are", sighing a weary sigh, and wondering when human beings will be less childish and less subject to such sudden changes of front. If only one age would cooperate in all respects with the preceding, if only human beings might be wise, not in their own conceit, but in the knowledge of history and the errors of the past; what might not be done, especially if to that knowledge they joined a program of reconstruction that involved all the facts!

For it would appear that the present is exhibiting or about to exhibit a change of emphasis, a change of value, a shifting from an attack on Nature and her mysteries to an honest effort to take stock of the nature of man, his glories and his shortcomings, and in the light of that tabulation to make up for his deficiencies and crudities. Yet it is doubtful if the forces which insist on such a shifting in emphasis are at all agreed on the value of either the contributions of the past in the light of which he may be estimated, or on the program of reconstruction with which he is to be visited. The quotations of the "saviours" of some pages back would seem to indicate a considerable difference of opinion; and there is no doubt whatsoever, that if the slowly accumulated scientific knowledge of the past few centuries be not used in the new era of the enlightened attitude toward man and humanity, of necessity there will come again such a return to external science and a world of reason as will make this seem essentially humane in comparison. We cannot, to go forward in the direction of making the world better, in the social and human sense of that term,

go backward in the sense of knowing the facts and understanding the structure; we must both know and yet use the knowledge. MacIver, in his recent "Labor in the Changing World", in speaking of an associated problem, writes, "Science provides the means, but we badly need enlightenment as to the ends they serve. Science shows the road to productivity, but productivity for what? If by our social indifference and lack of direction we increase productivity by means which degrade the producer, what good is that to society? ****** Productivity is justified only by the welfare it makes actual".

The present, then, has seen a rediscovery of man and society. We are, as it were, astonished to find that man is so complex, so curious, so sensitive, so easily deranged, so readily misled,—and yet so easily understood, if we but give him, as man and as member of a group of human beings, the intensity and consistency of study that we have given to his environment. And the present rediscovery of man and society is a psychological one; man and his social aggregations are no longer described in terms of atoms, forces, physical and chemical formula, no mere phrase of "distributions of energy", or "increases in heterogenity" will satisfy the inquirer or the investigator; man and his world, both individual and group, are explained and described in terms of feelings, thoughts, wishes, impulses, instincts, emotions, purposes, ideals, and a whole coterie of such qualitative concepts. The most trivial things, to a first attention or acquaintance, have seemingly had the most tremendous effects; not only in the life history of a given man, but in the longer history of a group or a large society; and we can readily see, in the light of our present knowledge, that this has always been so and perhaps always will be. We have become aware, in perhaps a more intimate way than was given to any previous age, of the drama of the individual life and its complex results when compounded with other such individual dramas in the tremendously complex inter-action of many individuals in a group. Yet science has hitherto had little or nothing to say of all this; it is essentially not a matter of mere quantitative results or summaries; we do not know the nature of human consciousness by stating the norm and the derivation therefrom; we know the nature of consciousness by its fruits and its coordinated activities.

The new man is the strange product of a disinterested scientific investigation with all the paraphernalia of instruments, laboratories and experiments; it is the product of science, however, and as usual, only in the descriptive sense, for no science as yet (if we exclude sociology and education as not coming within the province of science),

has undertaken to use that knowledge for the rehabilitation of human values in a reconstructed world. Nor can this statement be made too often; for the tradition is still with us that in accurately describing a given subject of investigation, in plotting its relationships to other existing subjects of a similar type, and in giving also, perhaps, its evolutionary history we have exhausted the investigation. It is rather the contention, here, often reiterated, that with the attainment of such a stage of knowledge, the investigation and the solving of the problem have but begun. What, then, has the laboratory brought forth? In a sense, a new Frankenstein; for it is just in terms of the new psychology that the whole quarrel has started, and it is in terms of the structure of the newly discovered man that we must answer the questions he and his ancestors have from time immemorial asked. It is in no new sense that man and men ask, What is the purpose of life?, How am I to fill my days?, What is my relation to my neighbor and to the community? These are age old questions, and they have been answered with age old sophistries, with words that have, at times cleverly, and at times clumsily turned the edge of the questions. But this time, in the light of the new knowledge of man and his nature, we can, if we will, answer with truth and exactness. And our answer, if it be honest, reverses many of the old answers, and we find man, not knowledge, man in his dynamic activity, not description, to be the heart of the universe; a universe which has no meaning except with reference to man and his nature, for "meaning" is a human term.

What, then, is the nature of man? Again we cannot follow out in all the ramifications and technical details the new story of the new man; a brief summary must suffice. A man is both a repository of past racial and biological activities and experiences, an accumulator and organizer of new experiences on such a basis, and finally, a dynamic instrument of reaction in the light of purposes and desires, some of which he has also inherited and some of which are the product of his personal span of existence and consciousness. The first element, the racial and biological, results in certain propensities to act thus and so in a given situation; that is, given a situation in the environment, man will, apart from training and personal experience, tend to act in a given manner. This, in the young child, is relatively simple, but the course of personal experience and growth often complicates, without destroying the original element, such primitive modes of response. Emotions, instintive activities, reflexes, are such types of conduct, and it needs but a very little unbiassed observation of self or neighbor to form a very wholesome estimate of both the power and the variety as

well as the frequency of action based in whole or in part on such inherited bases. The second element, the accumulated and organized elements of experience, again offers a fertile field for observation and experiment; how much of what, as adults, we do and desire to do, is based on very early, and perhaps forgotten experiences, complicated, it may be, by the first, more fundamental element of racial inheritance?

But the third element, projected dynamic action, on the bases of both personal and inherited possibilities, must needs be emphasized as much, if not more than the other two, for man does not act merely or always, or perhaps even oftenest, "from the past", on the basis of the past, just as past, but from a purpose, visioned in the future, from a dissatisfaction with the present, and from a perception that, with the materials both of his own nature and the external environment, of which he is so vital and intimate a part, he may reconstruct, reorganize, and bring about that situation which will more nearly satisfy the desires and purposes which flow through him. His efforts are, to be sure, conditioned by that past, limited in many directions, unlimited perhaps in others, but effort and the consequent results soon show both the limits and the free field of open possibilities.

The whole man, then, the "new" man, in the psychological meaning of the term, is no mere seeker after knowledge,—nor happiness either for that matter, but an immensely complicated system of reactions, a psycho-physical instrument, directing its efforts and energies to the attainment of purposes, some remote, some near, some simple and some complex; succeeding and complicating one another in an infinitely varied way, never, in a practical sense of the words, the same in a given individual, and never duplicating themselves in separate beings. To state the whole description of the previous paragraph from the inner or neurological point of view, we find that, at any given moment, certain of the systems of neurons associated with the mechanism and manifestation of a given action (be it instinctive, emotional, learned or what not), are "ready to act"; they are physiologically and biologically in a state of well being, they are well fed and, as it were, on a hair trigger. Under such conditions, if the environment offers the proper situation for the inherent response for the nerve group in question, it "goes off", we perform the action in question, we function as our nature, has been ready and poised to act,—and the result is biological and psychological satisfaction and well being so far as that portion of the whole system is concerned. When we are hungry, when our digestive system is ready for food, when we, in common terms, and with no competing desires to compli-

cate the situation, desire food;—to eat is pleasant, and not to do so is unpleasant;—and the terms pleasant and unpleasant have no further significance than the biological one already given. Pleasantness in a response implies the condition of readiness, and the condition of readiness implies the pleasantness for the subsequent response, and the union of the two will continue till the response is not due to a readiness of the neurons involved, but some external condition of force or necessity. On the contrary, to eat from mere formality or social pressure, when the system is not ready to function in that way is unpleasant; and again the terms have, here, simply biological and neurological significance. It is the same for any other activity in which we indulge or are able, on the basis of heredity or experience and habit, to indulge in; to be awake when the system calls for sleep, to be forced to sleep or to pretend sleep when action is preferred, to sit when we desire action, to exercise when we are neurologically ready for rest, to restrain an emotion when we would, on the above basis, rather express or experience it, to be forced to show the external signs of sympathy when we feel none or its opposite, all these are but random and elementary examples of the facts involved in the activities of human beings in their daily lives, and would, in each case, involve the biological unpleasantness which we have described above. Other similar elements of biological significance enter into the full explanation of the well being of man's inherited and acquired system of reactions, purposes and desires, but such details do not concern us here.

It is in the application of these principles to the field of ordinary everyday life that their significance becomes apparent, and the glaring defects of our social system become clear. A number of books treating of just this biological and psychological error in our social structure have recently appeared, and their number is constantly increasing. And it is noteworthy that philosophy and psychology, in the instances of many recent contributions, seem to share to a considerable extent both the field of their research and discussion, as well as the methods they use and the conclusions to which they come; indeed, it is difficult at times, to say whether a given text is primarily a psychology or a philosophy or even, a sociology*. They constitute a partial bibliography for the present article.

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*In the first group, those applying psychology and biology to the problems of the individual man and society, the following are of particular importance: Tead, O, Instincts in Industry; Wallas, G, The Great Society, and Human Nature in Politics; Trotter, W, Instincts of the Herd in Peace and War; Veblen, T, The Instinct of Work-

To sum up the present section, man, merely as a human being, and apart from training or differentiation, has many modes of response, the satisfying of which leads to biological and psychological well being, and on the contrary, the denying of which leads to biological and psychological dissatisfaction and finally to actual, concrete, overt ill-health, mental and physical, the latter leading, ultimately and inevitably, to social malfunctioning and unrest. This does not imply that all tendencies, all desires, all instinctive actions and responses can or will be permitted socially;—but the contrary situation, where a select few only of all such activities may be indulged in by the average, non-privileged member of society, is at least as socially undesirable, as inevitably productive, in the long run, of a non-social type, and as disastrous, in the last analysis, to both the individual and the group.

Examples illustrating the statements of the last paragraph are not difficult to find. To name, specifically, only a few of the instincts or innate capacities for acting or wanting to act in a certain way, when the stimulus is offered, we find the parental instinct, the different but associated sex instinct, the instinct of workmanship, the instinct to acquire and possess, the instinct leading to self-assertion and its contrary leading, under different circumstances and different stimulae, to self-abasement, the herd or group instinct, the fighting instinct, the impulse to play, the tendency to be curious, to examine and to think. There are also the emotions of, at least, fear, rage and "love", as well as other more complicated abilities and capacities, too numerous to mention and discuss here. On the basis of the argument presented, which is in turn founded on the objective evidence of the laboratory work in psychology so recently done, it is quite evident that

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manship; Thorndike, E L, Educational Psychology, vol I; McDougall, W, Social Psychology; Marot, H, The Creative Impulse in Industry; Metchnikoff, I I, The Nature of Man, and The Prolongation of Life; Parker, C, The Casual Laborer and Other Essays; Watson, J B, Psychology from the Standpoint of a Behaviorist; Cory H E, The Intellectuals and the Wage Workers; Russell, B, Why Men Fight, and Proposed Roads to Freedom; MacIver, R. M, Labor in the Changing World; Walling, W E, The Larger Aspects of Socialism; etc. To the second group belong such products as: Perry, R B, The Present Conflict of Ideals, and Present Philosophical Tendencies; Holt, E B, The Concept of Consciousness; Spaulding, E G, The New Rationalism; as well as all the titles in the field of the New Realism; and the Freudian psychology.

social and industrial life, as at present organized, most emphatically does not offer any opportunity for the exercise of these mechanisms, nor for the resultant well-being of the individual. For example, many of our men and women can never, under present conditions become parents, nor even in the absence of that satisfy the instinct of sex, at one and the same time one of the most primitive, one of the most imperious and one of the most repressed in our social structure. And it is to be noted that, whether rightly or wrongly, the present Freudian analysis holds that much social inefficiency as well as downright abnormality and non-social action on the part of individuals is due to a mis-functioning or lack of functioning of this and associated mechanisms. Nor can an instinct of workmanship be used in the monotonous, simplified, uninteresting work of many of our industrial workers; the strike, at least, is their own creation, and in addition to offering satisfaction to still other mechanisms, also gives some exercise to the instinct of workmanship, leadership and self-assertion. So with the rest; one and all, as responses of the normal human being they do not find the appropriate stimulae in the world of present day conditions; we all, whatever our social position, whatever our place in the present complexities of civilization, find ourselves baulked, time and time again, and in every given direction, by a taboo and a restraint which has grown up under the influence of a one-sided emphasis on certain human abilities and certain human products. The world of reason and the products of science do not offer, in any sense of the words, an outlet or a stimulus for the normal, complete functioning of the normal, complete human being; they satisfy but one mechanism, —the capacity, and the desire to manipulate, to examine, to think. We who have, in any sense of the words, preserved even approximately our normal capacities and abilities and who still function as approximate wholes, can only give praise and thanks to the relatively rich and generous environment in which we have grown up. It is always a matter of proportions. Contrast with the normal state of a normal human being such pictures as Parker presents in his analysis of the Casual (unskilled) Laborer. "The powerful forces of the working class environment which thwart and balk instinct expressions are suggested in the phrases monotonous work, dirty work, simplified work, mechanized work, the servile place of labor, insecure tenure of the job, hire and fire, winter unemployment, the ever found union of the poor district with the crime district ******. If we postulate some twenty odd unit psychic characters which are present under the laborer's dirty blouse and insistently demand the same gratification that

is with painful care planned for the college student, in just what kind of perverted compensations must a laborer indulge to make endurable his existence? A Western hobo tries in a more or less frenzied way to compensate for a general all embracing thwarting of his nature by a wonderful concentration of sublimination activities on the wander instinct. ****** The balked laborer here follows one of the two described lines of conduct: First, either weakens, becomes inefficient, drifts away, loses interest in the quality of his work, drinks, deserts his family; or, Secondly, he indulges in a true type-inferiority compensation and in order to dignify himself, to eliminate for himself his inferiority in his own eyes, he strikes or brings on a strike, he commits violence or he stays on the job and injures machinery ******. His condition is one of mental stress and unfocussed psychic unrest, and could in all accuracy be called a definite industrial psychosis. He is neither wilful nor responsible, he is suffering from a stereotyped mental disease". A rather serious yet ludicrous culmination of an age which long ago promised so much, and promised it in the name of all humanity, and to the end of physical and spiritual well-being; and a rather serious indictment of the science which knows so much and can do, in a human sense, so little!

VI.

What, then, can be done; and on what basis; and to what end? What can be done is to change the environment which confronts the human being from his birth to his death, the social environment, that is; for it is in it rather than in the fabled "Nature", red in tooth and claw, that we live as human beings; the basis is the new knowledge of human nature; the end, the realization of the old promise of science and the world of reason. In no uncertain sense psychology is the present "science of the sciences"; born, to be sure of an older science, imbued with its methods, but rich in a new knowledge that can turn the older knowledge that produced it to human and wholly human ends. But though the end is clear, the means for attaining it are not, though several steps in such a reconstruction may be briefly indicated. Parker writes, with the same problem in mind, "The dynamic psychology of today describes the present civilization as a repressive environment. For a great number of its inhabitants, a sufficient self-expression is denied. There is for those who care to see, a deep and growing unrest and pessimism. ****** If we are to play a part in the social readjustment immediately ahead, we must put human nature and

human motives into our basic hypotheses. Our value concept must be the yard stick to measure just how fully things and institutions contribute to a full psychological life. We must know more of the meaning of progress. ******"

The first step would seem to be an even more complete analysis and understanding of the fundamental characteristics of human beings, as individuals and as groups, together with an accurate understanding of what situations call forth the responses which have been thus ascertained, and an estimation of the present environmental and social conditions favoring such responses or inhibiting them. This would be but the crude material, the sine qua non of a reconstructive period; we need, as has often been said, a criterion of progress, a goal to which to work, as well as a principle by which to organize our efforts. But this again, by the very nature of the case, and on the basis of the argument which has been constantly advanced here, must be a concept made up of human characteristics, of generalizations about human nature, of opportunities and openings related to the human nature which so ardently desires to "progress", and which has sought such devious ways to do so. We can, to retain the level of the present discussion, and to avoid the necessity of purely academic arguments and issues, only refer to the often quoted maxim, "the greatest good for the greatest number", and suggest that it be amended to read "the completest functioning, biological and psychological, for each human being consistent with the same functioning for every other, and the consequent modification of the social environment to so permit". This, as least, while vague enough, at least gives real content to the phrase of the older maxim, "the greatest good", for in the latter "good" and what is "not-good". It is, moreover, quite apparent that senses of the term, it is quite apparent, as has been shown, what is "good" and what is "not-good". It is, morevore, quite apparent that it is no longer a matter of an a priori sketch of what is possible for the individual to do, what is permissible for the single unit to respond to and to express, but that it has become a problem, subject to control, of trying our various situations, and seeing the actual results. We need not dogmatize, we need not lay down "reasonable" rules, we need but experiment and see, and do so in a broader and more social sense than we have ever done before. In his Proposed Roads to Freedom, Russell depicts just such choices, such bases for trial and experiment, such new states of associated living as have not been tried, and we stand to gain or lose by adherence or by avoidance of this sort of flexibility in our societal evolution. Science and history, for example,

may give us the facts about the growth and the present state of property, marriage or what not; psychology can and does give us the facts as to the relation of property and original human nature; but nothing but experiment can tell us what fundamental changes in the present system would do for the individual and the group. Such experiments are being made; in the light, perhaps, of knowledge and research and a study of human nature, in Russia; but a study of the present evidence would indicate, rather, that the present experiment there is more in the nature of a tremendous psychic reaction to intolerable conditions than a carefully thought out program of social experimentation, carefully watched and jealously evaluated. And we need, as has been said several times, careful experiments and watchful manipulation of social and human activities, in the method but not with the aloofness and bias of science rather than a mystic and emotional, perhaps hysterical swamping of all that the present age has inherited and so carefully developed and increased. That the present situation of man in society is intolerable to all but a chosen few is apparent; that it will change, and that a different society with different values and emphases will appear is as inevitable as the end of the individual life and the succession of a new quota of individuals with some of our prejudices and some of our ideals; *how* it will change, and *to what* it will change are problems that demand our most whole-hearted interest and activity, for on us depends part at least of the resultant civilization, part at least of the coming revised schedule of interests and methods, institutions and freedoms.

Another element in any reconstruction is candid self-examination; a weighing of our social and societal fitness and worthiness; a determination of what we as individuals are doing and have done to hinder or help the development and functioning of other human beings, in our respective positions of social, economic or professional power and influence; of what we are prepared to do, as individuals and as associated members of active groups to both investigate, report, experiment and venture; what we are prepared to lose that others, ourselves included, may gain. It is particularly as teachers that we can function for the reconstruction of society, for the coming of the essentially human society, where repression will be at a minimum, and where the emphasis will be on creative activity, biological and psychological self-expression, tempered only by the equally biological and psychological desire for companionship of equal natures; for the class-room offers, in spite even of "courses of study", unequalled opportunity for the development of whole-human-beings, with its selected environment, its

minimization of the severer consequences of error, and its possibilities for experimentation. Educational theory has come near to being the fundamental social and philosophical theory of the recent years, for the inherent problem of education is just the problem of the present paper, and no problem more closely touches the welfare of the individual or the group than the problem of the meaning and the conduct of life.

Still another element is a pooling of interests on the part of the many separate sciences, and the adoption, consciously and explicitly, of an essentially human point of view; human in that it overtly recognizes that knowledge and knowing represent but partial and infrequent activities of human beings; human in that it recognizes Nature as a portion of Man, and that results obtained and measurements made in the former are, in the last analysis, of value only in the light of immediate or remote use on behalf of human beings; human in that it directs attention not merely to the quantitative aspects of both human nature and the human environment, but that it recognizes also the qualitative elements of existence. One can well imagine a huge Committee of Social Welfare and Progress, to which all significant material and all new discoveries would be, as a matter of course, forwarded, and where, in the light of the respective member's reaction, representing every and all scientific and social interests, the essential meaning and value for present social and human plans would be extracted, and situations and conditions adjusted to meet them, to make them actual. Such a social clearing house has been a dream in many periods of history; such, perhaps, will be the outcome of the present social dissatisfaction which has resulted in the criticism and the destruction, in part at least, of every institution; such would be, indeed, a vindication of science and the accumulated results of its years of research in the world of reason; but a vindication that will be won only on the basis of a consideration of the human significance of knowledge which the immediate past has not shown.

SOME RECENT PHILOSOPHIES, AND THE HELP THEY MAY BRING TO RELIGION

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Doubtless everyone has a philosophy, though not many may have it as an explicit and fully-rounded possession. " 'Hast any philosophy about thee, Shepherd?'—this question of Touchstone's", says James, in his posthumous *Problems of Philosophy,* "is the one with which men should always meet one another. A man with no philosophy in him is the most inauspicious and unprofitable of all possible social mates". Still, there is the widest difference between having a few ill-digested fragments of philosophy stowed away in a seldom-visited corner of the mind, and being consciously and in a consistent sense philosophers. The justly-famous Mr. Dooley, and his discriminating friend Mr. Hennessy, may be said to have something of the philosophic mind. But we cannot look to such gifted amateurs for light on our graver problems. Too much of the philosophy latent in our current conceptions of religion is of this casual sort. We have an abundance of loose philosophizing, but we have few thorough and systematic philosophers. These we should know better than we do.

In this paper, I wish to describe for general readers as well as for students of philosophy something of the bearing of recent research into the ultimate problems of existence upon our religious conceptions. Before embarking directly upon our present enterprise, however, it may be well to inject a few preliminary words upon the general relations of philosophy and religion.

I.

The statement of my subject, "Some recent philosophies and the help they may bring to religion", may have seemed to imply that religion is a secondary and derivative interest, in some way dependent

on philosophy for furtherance or even existence. As I see it, this is not the case. Religion is a matter of feeling; of direct and immediate experience. It would complicate my task too much, here at the outset, to set up a more particular definition of religion. Some one has said, with as much wisdom as wit, that we know perfectly well what religion is until we attempt to define it, when we at once fall to blows over the definition. Clearly, religion is not one thing, but many. The word stands as a convenient summary for the almost endless variety of men's total reaction on life. If we accept the modern principle that the definition of anything is the orderly enumeration of the phenomena which it presents, then it becomes evident that adequately to define religion would be equivalent to writing its history, something that cannot be undertaken here. As primarily an inner experience, religion in and of itself is inarticulate. It needs interpretation, in a dialect congenial to the times in which we live. Now philosophy is the analysis and explication of experience, systematically carried out and logically connected. Thus the utility of philosophy to religion becomes evident—the help it may bring to it at any given period, such as the present.

Plainly, philosophy and religion have always been sensitive to each other's proximity. In the classic period in Greece, philosophy strove for an independent knowledge of the world of reality, and in the hands of Socrates, Plato and Aristotle led to the discrediting of much of the crude, popular mythology of traditional religion. During the Middle Ages, the dominant authority of the Church kept the reigning Scholasticism in leading-strings to the prevailing system of dogma—purporting to be drawn from the Biblical revelation—a relation of subserviency which, we trust, will never again be possible. Since philosophy became independent, in the early Renaissance, it has shared with physical and historical science the role of guide and instructor in the far-reaching reconstruction of the modern religious outlook.

The great Schleiermacher, reflecting a century ago in Germany upon the best means of remedying the decay of interest in religion among the educated classes, and of acquainting the clergy of the time with the living spiritual needs of humanity, recommended to his colleagues in the ministry "a deeper speculative discipline". Today, with the astounding prevalence of a cheap emotionalism, a thinly-watered mysticism, and an occultism reminiscent of "the dark backward and abysm" of primitive magic and superstition, it is surely pertinent to recommend, to all who still feel any concern for the legitimate interests of the mind and the higher values of the imagination, a better

acquaintance with our contemporary resources in the way of serious reflection on life.

Considered as an end in itself, philosophy is an ennobling and vivifying pursuit; but even utilized as the severer study of a life filled with urgent duties and human service, it may have the supreme value of clarifying and organizing one's thinking, opening new and fruitful points of view from which to understand the movements of present-day life, and yielding reasons based on the nature of things for arriving at a more assured faith and hope. The characteristic philosophies of today, whether they are friendly or hostile to religion, have a direct share in moulding its ruling conceptions. If we can hope for any further advance, we must look chiefly to philosophy to elaborate and co-ordinate our leading ideas for us.

If the publication of a constant succession of books in all the leading departments of philosophy, the translation into English of the works of important thinkers in every European country, including Russia, and the incessant din of discussion in the philosophical magazines, are signs having any real significance, the period in which we are living is one of widespread and fruitful speculative activity. Since the great Greek thinkers fell asleep, and "the glory that was Greece" began to wane in the civil tumult of the Peloponnesian War, there can rarely have been a time when the student of philosophy had at his command such an amount of able contemporary writing on the ultimate questions of human existence as he has now. Nor does the fact that our world has just been rent by a vaster and more violent civil tumult seem, as yet, to have checked the ample flood of philosophical production. One who reads only English has much of the best of it within his reach. But one who has equipped himself also with French and German can, of course, go very much farther, especially in keeping up with current books and important periodical literature, while Italian and Russian are languages which no thorough student should feel that he can afford to neglect.

The speculative awakening in the United States seems to have been largely coincident with the opening decade of the twentieth century. Obviously, a leading factor in the new impulse was the personal fascination, the contagious enthusiasm, and the enthralling literary style of William James. It would be impossible to over-estimate the significance of his personal contribution. Many non-technical readers were first aroused by his writings to interest themselves in the problems of philosophy, and he was never weary of introducing to our more thoughtful public new lights in the philosophical firmament,

descried from afar by his eager, adventurous spirit. Yet numerous other influences have to be reckoned with—powerful minds engaged, or but lately engaged, in the tasks of philosophy in many lands. Any enumeration of these must be selective, and in so far unjust. But, of thinkers now alive, or who have recently departed, while their work still lives, men like James, Howison, Royce and Dewey in America: Green, Caird, Bradley, Bosanquet, McKenzie, McTaggart, Schiller and Russell in England; Renouvier, Boutroux, Bergson and Durkheim in France; Windelband, Wundt, Eucken and Rickert in Germany; Shestov, Losskii and Soloviyov in Russia; Varisco and Croce in Italy; and Hoeffding in Denmark, are outstanding individualities whose influence may fairly be called world-wide.

II.

In what follows, I shall undertake to sketch briefly a few of the outstanding attitudes of recent schools of philosophy, especially in our own country, in their historical setting, and in so doing describe the help that, in my opinion, they may bring to religion. For the sake of contrast, let us take as a starting-point the generation immediately before our own. If, now, we ask what help philosophy was bringing to religion half a century ago, we find a distinctly less promising situation for religion than ours of today. In the '70's and '80's of the last century, the object most before the eyes of advanced thinkers was physical nature as a whole—the cosmos. The theory of the gradual evolution of life, from amoeba to man, long put forward as a hypothesis, but first given an objective, empirical basis by the patient genius of Darwin, was swiftly extended by Herbert Spencer to include the entire life of the universe. By a skillful manipulation of the mechanical concepts of matter, motion and force, Spencer, in his *Synthetic Philosophy,* professed to account for all existence,—mental, moral and spiritual, no less than physical. A monument, in American philosophic advance, to this great system, expounding it even more clearly and eloquently than its originator, was the *Outlines of Cosmic Philosophy* of John Fiske, published in 1874. The striking feature of this whole course of speculation, abundantly shown in Fiske's *Cosmic Philosophy,* was its relative submergence of human personality. Man, of course, was given his due place as the final result of evolution. Thus Spencer, after laying down his first principles, mounted by successive stages of development through the principles of biology to those of psychology, ethics and sociology,—these last being the special sciences of man. But as for the rank of person-

ality in the universe, it was assumed to be merely secondary and derivative. Spencer gave to "the infinite and eternal energy from which all things proceed" the name of the Unknowable; and though he went on to intimate that this same infinite and eternal energy "wells up in us as consciousness", he stoutly resisted the idea that consciousness in us can yield any trustworthy data whatsoever upon the nature of ultimate reality. In John Fiske's presentation, going in some respects beyond his master but conceived in the same spirit, the one thing most confidently to be affirmed of God was that he could be in no possible sense "anthropomorphic". Everything associated with human personality was looked on as limiting and narrowing. Our theism, if we still had any, must be of a no less than "cosmic" breadth.

It is amazing now to remember the vogue, especially in "liberal" circles, which Spencerian Naturalism enjoyed for about the last third of the 19th century. This was in part due to its success, in the hands of able controversialists like Huxley and Tyndall, as a weapon against ecclesiastical fossilizations of the first chapters of Genesis and of the New Testament miracles. That was the day of wide-spread agnosticism among the more thoughtful and energetic minds. Leslie Stephen's *An Agnostic's Apology* may serve as a typical book of the period, which was marked by keen analysis and searching criticism, but by a kind of impotence to take the positive tone that strikes us today as somewhat pathetic. A remarkable illustration of this whole habit of thought survives in an address by Henry Doty Maxson, one of the noblest spirits who ever served the cause of liberal religion in America, on "Religious Possibilities of Agnosticism". This sentence is characteristic: "Rather let the heavens be impenetrable brass and no whisper of the Eternal ever come to our eager souls, than that we fail to embody in our lives the highest ideals of duty to our fellow-men".

The address concludes in this fashion: "Jehovah is, indeed, gone; but that in Jehovah which made worship possible, the mysterious depths of the divine nature which the plummet-line of human thought could not really pretend to fathom,—that abides. 'The Infinite and Eternal Energy, by which all things are created and sustained', no longer speaks to my ear in articulate language from Mount Sinai; but I seem to feel its influence pressing from every direction upon my soul. I would fain call it God,—a term which stands for a long line of spiritual experiences from which I have no anxiety to cut myself adrift; a term, moreover, which seems to have previously represented a distinctive fact which has not been eradicated but strengthened by my later thinking. However, I am not particular about terms.

I am rather gratified to find that the fact remains. Should, indeed, loyalty to truth ever demand the sacrifice of what now seems 'fact', I hope that with the utmost promptness and cheerfulness I shall make the final surrender, and give up religion as one of the unsubstantial fancies of childhood. That time does not appear to have yet come in my experience. And meanwhile, in the presence of that Power which passes the possibilities of delineation, I would bow in reverent awe, and not unloving trust".

What chiefly impresses us in this attitude at the present time is its wistfulness. The speaker, a man of the rarest sincerity and integrity of feeling, as well as of thought, appears almost ready to believe that a few more discoveries of natural science will make the religious consciousness an impossibility. He is like a man who is taking an anaesthetic, and who sees the familiar world of his ordinary perception just on the point of dissolving into the void of a dreamless sleep. The anaesthetic, of course, which nearly paralyzed the higher faculties of that whole generation, was the soothing eloquence of Herbert Spencer. Those men read Spencer's *First Principles* with a reverent trust in its infallibility which they would not have been able to conceive any one attributing to the Bible. A similar influence was exerted over somewhat later minds in cruder fashion by a widely-read book of the same general tendency—Haeckel's *Riddle of the Universe*. The standpoint of both writers is not, as it more or less purports to be, that of science, but rather of Naturalism—that is, the method of science has here been raised into a metaphysic. It is held that there are no realities which our minds are able to apprehend other than those with which physical science can deal, after its fashion, by the method of objective experiment and verification. But, giving all possible scope to physical science, there are other sides to our nature besides the love of pure knowledge of the universe about us. We are ourselves parts of, if not products of, nature. We cannot starve the reason, the imagination, and the deeper emotions on a blank Unknowable. "Undoubtedly", as Emerson said, "we have no questions to ask which are unanswerable". There are, in fact, no religious possibilities of agnosticism. Naturalism has no effectual help to bring to religion.

III.

The great antagonist of Naturalism in recent philosophy has been Idealism—the attempt to interpret the cosmos, including humanity, from a standpoint within, and emphatically partial to, our human consciousness. This movement has had two phases, an older and a newer,

or Absolute and Personal Idealism. Both start from the critical philosophy of Kant which, just over a century ago, at once summed up in itself the results of previous speculation, and broke the paths that thought has chiefly followed since.

The older phase of the advance in the direction of a fuller recognition of human personality is that usually named Absolute Idealism. This is the system elaborated by the German followers of Kant, culminating in Hegel. Until about the year 1900, it was dominant in most of the universities of Europe and America, though of late its sway has been sharply challenged. Its living disciples are too many to name, but it is best known to English and American readers in the works of Thomas Hill Green, John and Edward Caird, Josiah Royce, Prof. John Watson, Prof. Henry Jones and, the most critical and important surviving member of this school, Mr. F. H. Bradley.

The central idea of Absolute Idealism is that there exists a perfect Thought and Life, of which our imperfect, finite, limited thought and life affords a remote but real suggestion. We, and everything we know in ordinary experience, are relative; but the fact of our relatedness points logically to an Absolute, which is in itself all that we are only potentially. Our ideals, to which we can never attain, are nevertheless assured to us by the existence of the Absolute. The Absolute provides the ultimate unity which our thought strongly craves—the reconciliation of all the seeming differences and contradictions that mar our finite experience. The Absolute, lifted out of our finitude, knows the end from the beginning, and sees all things together under the form of eternity, as they really and unchangeably are. In a word, Absolute Idealism concentrates its strength on developing the implications of human thought. Its text-book is, rightly, Hegel's *Logic,* and its golden text might well be found in the opening verse of the Fourth Gospel—"In the beginning was the Word (in Greek, *Logos*) and the Word was with God, and the Word was God". This already marks a clear advance over Naturalism. Thought is an agent whose determinations are other than purely mechanical. A universe derived from thought gives more promise of doing justice to the human factor than one based on matter, motion and force. Personality is at least recognized, if in a somewhat qualified form, as will shortly appear.

At once, as soon as this doctrine is stated, we perceive that it offers us a subtly-reasoned and profoundly religious idealism; one difficulty with it, indeed, is that there is too much subtlety in its reasoning. It supposes, contrary to the celebrated dictum of St. Ambrose of Milan, which had so much weight with Cardinal Newman, that God

is pleased to save his people by means of dialectic. Its attitude toward religion is: "Come, and let us reason together about it". But if one has tried to read such books as Green's *Prolegomena to Ethics,* Bradley's *Appearance and Reality* and Royce's *Conception of God,* as representative of this tendency, one is likely to conclude that, if so difficult a process of thought is a pre-requisite to believing in God, the great mass of mankind will have to be contented without believing in Him. This is not to say that such writers may not have brought a distinct and needed help to religion in a time of serious unrest; only it is a help that few of those to whom religion is a real concern can find either the time or the mental acuteness to utilize. Yet, if one is to express his full thought, one must add that such reasoning actually gets us nowhere. Its cogency depends upon assumptions that are becoming increasingly doubtful, and its total effect is that recorded by Omar Khayyam of his own youthful researches into the Absolute:

> "Myself when young did eagerly frequent
> Doctor and saint, and heard great argument
> About it and about; but evermore
> Came out by the same door where in I went."

The best exposition known to me of the incapacity of this type of thinking, in its way so plausible and so enticing, to give a dependable support to religion, may be found in Prof. Ralph Barton Perry's *Present Philosophical Tendencies,* in the chapter entitled, "Absolute Idealism and Religion". This stimulating author writes:

"For the religious consciousness, if we except alone the state of mystical contemplation, God is the will through which the universe shall in the end prefer happiness to misery, good to evil, life to death —and thus carry through to some eventual triumph the adventure in which man is presently engaged. Religious hope and fear, like all hope and fear, are discriminating. They issue from the love of some things and the dread of other things. The believer looks to God for a boon, knowing well the sweet from the bitter. Hence the assurance that things are one, eternal, both infinitely rich and also orderly and coherent,—even the assurance that as such they are thought or willed, leaves him unmoved. He must know incomparably more before, in his religious perplexity, he knows anything".

Notwithstanding my own great indebtedness, in earlier years, to the writings of Edward Caird, I am compelled to include his point of view here as insufficient. To reduce the whole of reality to a self-evolving Thought makes the universe seem too much, as Bradley him-

self has expressed it, "a ghostly ballet of bloodless categories". A defense and support of religion, furthermore, which involves the preliminary mastery of the mazes of Kant and Hegel may do for the millennium; but for these swiftly-passing days a more direct method is essential, at least for the vast majority of men and women. We may find it indicated in the vigorous reaction of Arthur Hugh Clough against the pale negations of his Oxford training.

"Hope evermore and believe, O man, for e'en as thy thought
So are the things that thou see'st; e'en as thy hope and belief."

This, which we may call the spontaneous pragmatism of the natural, who is also the spiritual, man points for us in the direction of the help that another claimant for attention in the field of current philosophy may bring to religion.

IV

For this is the point from which a third antagonist in the arena of contemporary philosophy sets out. It is the phase of thought popularly known as Pragmatism, better perhaps called Humanism or, more definitely still, Personal Idealism. Its exponents are a large and various group; foremost among them, of course, being William James. Prof. John Dewey of Columbia University and Dr. F. C. S. Schiller of Oxford are outstanding leaders in America and England, respectively. Others, less radical but still widely influential, are thinkers like Charles Renouvier, one of the most distinguished figures in 19th century philosophy in France, acknowledged by James as in some important respects his teacher; George H. Howison, late of the University of California, and an interpreter of profound influence especially upon thought on the Pacific Coast; and Prof. Rudolf Eucken of Jena, the leading German apostle of the new idealism, whose inspiring writings have made him a world-figure in philosophy and, despite a temporary discredit due to his attitude in the world-war, still in my opinion one of the undoubted guides of humanity into a larger and richer spiritual future. An original thinker of extraordinary brilliancy and conspicuous world-influence, Prof. Henri Bergson of the University of Paris, should probably be included in this group, though he occupies a position which is in many respects both independent and unique. It is not claimed that all these philosophers are Pragmatists, or indeed would allow themselves to be called by any of the names given above. They are simply put together as in a general way representative of the attitude in philosophy whose character is now to be sketched.

Personal Idealism, as I prefer to call it, begins with a criticism of Naturalism and of Intellectualism or Absolutism, from which it proceeds to a positive construction of its own. As the name signifies, it gives to personality the foremost place. It is also primarily a philosophy of action. The cosmos is, indeed, a very wonderful affair: but all we can know of it must somehow come to be reflected in human experience. Mere thinking about it, in the sense of striving for an objective description of its contents, however, does not satisfy us. We learn our deepest lessons from whatever reality there is by acting on it and acting with it. The later idealism, then, considers and attempts to account for the whole man.

The difficulties of Absolute Idealism are not in the realm of the Infinite, where everything is eternally perfect and complete, raised inaccessibly above this earthly scene of partial knowledge, willful blindness and easily-besetting sin; they are rather in the realm of the finite. The sacredness and autonomy of our distinct individualities, our rational demand for a real freedom and a genuine personal immortality, our sense of the clear and undeniable badness of evil—of natural evil as well as of human sinfulness—these crucial spiritual convictions it does not really secure to us. Personality is not actually, but only apparently recognized. It is more than doubtful whether Absolute Idealism can give us a Personal God or an individual immortality. The vice of Naturalism being the undue mechanizing of all things, the vice of Absolutism is their undue intellectualizing. Thought is a very significant function with us; but we do much more than think. We have in us all sorts of obscure but potent motions of feeling, of aspiration, of will, from which as well as from thought alone spring decisions and actions. Man thinking must always remain a noble object for contemplation; but man acting, as Goethe saw, adds something more. He stamps himself in, as Carlyle put it, upon the surrounding universe. He asserts his personal force, and in so doing has a minor, but for himself all-important, part to play in the tremendous, unfinished task of creation. It is not my wish to press this antithesis beyond the sober measure of truth. Psychologically, of course, thought is a kind of action, and all effective, well-directed action is clearly dependent on thinking. Only, why not think, while we are about it, to some definite end? Why think to the end of demonstrating that all thinking is futile to serve our own higher purposes? Why not put thought to the service of life, which is the wide and generous realm of which thought is but a single province, even if one of the most important?

If Absolutism takes its start, as it clearly does, from the Kantian criticism of the pure reason, Personalism preferably originates from what Kant called the practical reason—that is, it stresses the factor of action rather than that of pure contemplation. While the problems of Absolutism center almost entirely around the theory of knowledge, Personalism aims to include every phase of life. Knowing is only one of the functions fulfilled by consciousness. Biology, in its evolutionary form, reveals to us that knowing is largely instrumental in character. We seek to know in order to arrive at a closer adjustment to the changing conditions that confront us. Knowledge, in other words, is a means to more and fuller life, never a mere abstract description of that life. This is to say that reason is never pure, in the Kantian sense, but always in some degree practical, as Kant himself was later constrained to admit. Its purpose is never the arranging of data only, but also the seeking of fulfilments. It is a lamp to show us the way, a light to direct our feet.

An important consequence of this view is that it gives us reality as, in some sense, dynamic, unfinished, still in the making. Ultimate being is not to be summed up in a timeless and motionless Absolute. Actual forces are at work, actual results are being achieved, new depths of reality are being opened up, and we—in all our finitude and limitation—may have a real and contributing share in creating the fuller reality yet to be. We appear in certain respects bound, yet in the inmost core of us we are free. Our choices are real; our deeds make a difference; responsibility is not a vain show. The golden text of Personal Idealism might be: "My Father worketh hitherto, and I work", or "We are fellow-laborers together with God". The vital, indestructible spiritual personality which is our most real, because it is our deepest, self becomes in this view, in union with other, similar personalities, past and present, the one sufficient key to the Universal Life. We do not yet know what we shall be, but when He shall appear, our God and Father, it is our heart's faith that He will be not unlike us, His offspring.

In treating this tendency of recent philosophy, and the help it may bring to religion, I propose to emphasize chiefly what have been among my own leading interests, and dwell on the three related philosophies of James, Bergson and Eucken. My reason is that, while they differ considerably in their outlook and in the details of their method, these thinkers seem to me to belong to one great movement, as well as to be those among recent thinkers who bring the most help to religion. I may be wholly mistaken in the judgment, but I feel that to find a

parallel to the favorable disposition of philosophy toward religion, as represented by these thinkers, we should have to go back at least to the time of Leibnitz. I do not intend to raise a false issue by insisting that they are Pragmatists, because they are here grouped together under that rubric. James chivalrously wore the derided name upon his sleeve, though it is evident that he cared far less for it than for his more fundamental doctrine of Radical Empiricism. Bergson plainly has affiliations with Naturalism, as Eucken with Absolutism. But it is better to abstain from rigid classifications and the repetition of party-names, which can only stir up slumbering antipathies, and confine ourselves to the exposition of principles.

It seems to me, then, that these three thinkers have correctly apprehended the religious approach to reality, if we may so term it; that James, with his "will to believe", and Bergson with his "intuition", and Eucken with his "independent spiritual life" and his "activism", have again given courage and faith to men; enabling them to trust their better impulses, to take the positive tone, and to work for concrete results, without first going through the Hamlet-mood of the men of the last generation—whose "native hue of resolution" was weakened and in some cases quite destroyed by being too much "sicklied o'er with the pale cast of thought".

V.

The "will to believe" is one of those phrases which offers itself with a fatal facility to caricature. Many who never took the trouble to read James's essay of that name, and some whose habit is to deal in words rather than in the realities for which they ought to stand, have made merry over the will to believe. The phrase has even been carelessly identified with the wish to believe, which to those who know anything of James's robust and manly nature is merely ludicrous. After all, he was something more than a blatant idiot, and in announcing a principle that he must have known would for a time make him a prey to charlatanism, as well as to honest misunderstanding, he did his best to safeguard it by a conscientious restriction of the scope within which he held that it applied. The trouble is that the phrase "will to believe" has been lifted by its very brilliancy out of its original sober context. Put back where it belongs in James's thought, it means simply this,—the willingness to test a positive hypothesis where the conditions in no way preclude such a test. This is an operation constantly performed in the name of science, and no

one has ever found in that field the overwhelming objections that are raised against it in the name of philosophy. The scientist does not have to be sure of every step of his way before he can venture forth on some quest of the undiscovered. The main thing is to make the conditions right, and then go on with his test. A hundred tentatives may fail, but one may at length succeed. Most great discoveries have been in part accidental, or at least unanticipated. But the scientist had put himself by continuous experimentation in the way of discovering something, and at length it came. Science would find itself in a curious pass if it were to take the attitude that nothing more was left to be discovered. This would be a kind of fatalistic agnosticism not to be recommended even by Huxley himself. But it is precisely what the agnosticism of James's early environment came to, in religion, and he found the way out.

There is a striking parallel to the situation in Bunyan's "Pilgrim's Progress". Christian and his companion have lain long in Doubting Castle, with no hope in their minds of release. Suddenly Christian has an inspiration, and exclaims, "What a fool am I, to lie in a dungeon, when I may as well walk at liberty! I have a key in my bosom called Promise, which will, I am persuaded, open any lock in Doubting Castle". Then said Hopeful, "This is good news, brother: pluck it out and try". According to some of James's critics, Hopeful should rather have said, "But hold, brother! It is no test of your key called Promise that it will open locks. Or at least you ought not to try it on these locks in Doubting Castle until you have worked out a syllogistic proof that it will assuredly open them. Do you find anything in Plato or Aristotle or Kant or Hegel to show that this particular key is the only one that will fit those particular locks It might not fit all the other locks in creation, and then where would you be? It is not consistent to assume that a key which has never been tried will fit any locks at all. It was probably made for a world in which the concept 'key' and the concept 'lock' had never been properly introduced to each other". And so on. All these hindering sophistries simply vanish before Hopeful's honest and reasonable answer, "This is good news, brother; pluck it out and try".

The will to believe is simply a more technical name for that key in the bosom called Promise, which the humble and holy men of heart in all ages have plucked out and found to open every lock in Doubting Castle. The mood of agnosticism amounts to a refusal to experiment, under conditions where experiment is invited, and has at least some prospects of success. Religiously, the two methods may best be tested

in their application to prayer. The agnostic declines to pray, on the ground that he cannot be convinced in advance that a Power exists which can hear his prayer and render it efficacious. He has his reward, the reward of a lofty intellectual consistency. But the upholder of the will to believe obeys the natural impulse within and simply prays. Perhaps he hardly knows to what. He is not assured of any answer, or that the Power who might answer even exists. But his prayer is justified: in the uplift it gives his own life, and beyond that in the insight which gradually comes that God is a God of the living, not of the dead; that He exists at all only for those who pray and strive and aspire. Not to fulfill these conditions is gratuitously to surrender the problems of the Divine existence and efficacy in advance. To put your faith to the test is the only way of assuring yourself or anyone else that it is valid. Now, philosophy aside, this has always been the method of religion. It has taught men to pray first and to reason out their theologies afterwards. And the acceptable theology is simply a connected account of certain tested and successful workings. The basis is experience; there is no other. All harks back to and seeks to keep in touch with life. A helpful recent book of this tendency is Prof. Macintosh's *Theology as an Empirical Science.*

Of course this principle of the will to believe is easily open to abuse. But it is precisely the limitations placed by James on the principle that make his formulation of it distinctive. So long as evidence can be had, we are to follow it. This is the part of his formula that the critics usually ignore. The option before us must be living, forced and momentous, he tells us. Not to take a positive attitude must mean in such a case assent to the negative hypothesis, and that before the issue is even tried. The beliefs concerned are chiefly the belief in God and the belief in immortality. Are we to wait for evidence? What is to bring it to us? Suppose we begin with the will to believe, and see how it works. This is what all have done who ever had a belief in God or in immortality. Apart from the willingness to take the positive attitude, evidence that is conclusive cannot be said to exist. The test of these beliefs is, and always has been, how they work; not whether they give a momentary, subjective satisfaction to you or to me, but whether, age after age and with all sorts and conditions of men, they nourish the deep roots of life. In quoting James's test of working, not one critic in a hundred has thought it essential to add the very significant words, "in the long run". But the addition is essential. It is not a question of working at once in relation to my interior comfort and yours, but of working always and

everywhere, tried by any conceivable test, including that of reasonableness, and valid only if experience continues to render the same verdict to the end of time. That is the pragmatism of James, freed from the distortions of caricature. I submit that it is the immemorial pragmatism of religion, without which religion cannot even begin to be, and that in trying to give it philosophical justification the author of the "will to believe" has brought a mighty help to religion.

VI.

The conflict between science and religion, of which so much was made by the generation before ours, is by no means over yet, though it has taken a subtler form. From science purely as such, which concerns itself with the registration and description of phenomena, without rearing its provisional conclusions into a metaphysical theory of the universe, religion has never had anything to fear. But from theorists who speak in the name of science and seek to gain for their constructions the support of its growing prestige, religion, as we have seen, has something to fear. Even scientists themselves do not always draw sharply the line between fact and assumption. We need to be saved from a dogmatism which takes the name and clothes itself in the authority of scientific method. The popular mind does not always distinguish, and is sometimes imposed on. But, beyond this, it may turn out that the whole approach to reality on the part of religion and on that of science differs fundamentally. Science is a construction of the intellect. It does not offer us reality, but a description thereof. Science is objective, unbiased, analytical. It has no concern over the conclusions to which it comes except that they shall adequately account for the facts. Its facts are prevailingly those of sense-perception. The mood of religion is in many respects the opposite of this. Religion is subjective, synthetic, and immensely concerned over the preservation of values. The recognition of present actuality is important to it, but less so than its vision of the possible future. Now you cannot account for spirit in terms of science, for the reason that spirit is not phenomenal. It is the workman, one of whose tools we call intellect. The workman employs the tool, the tool does not undertake to fathom the workman.

Spirit has a tool that is even more congenial to it than intellect. It is intuition, says Bergson. What science seeks to account for by means of labored description, intuition comes to lay hold of by direct perception. We owe it to the second of our philosophers that he has

pointed out with surpassing clearness the distinction between intellect and intuition. In a word, intellect is chiefly a practical tool. It guides us unerringly in the world of every-day sense-reality; that being its training and purpose. In that wide realm, its right is undisputed and its uses are endless. It is a sort of chisel that cuts sharp edges around things that would otherwise be confused, and helps us not to mistake one thing for another. In melting things together so as to give us again the living and flowing reality of nature and mind, intellect is not so successful. Its efforts in this direction are more or less skillful mosaics. For an impression of the vital side of reality, we call on intuition, which is more like the brush of the painter. It is synthetic, charged with color, and has a noble sweep. It joins together what intellect for its very useful purposes had put asunder. It does not, of course, give us reality, but it gives us the inner sense of it. Indeed, when we confront reality itself, we can get the feeling of the whole only by resorting to intuition. It is, as I said, a faculty of direct perception.

The poets, the artists, and above all the mystics have had this faculty of intuition and have exercised it in a supreme degree. It has been, as a rule, cordially despised by the men of intellect because it could offer no reasoned proof of its visions. It could only reiterate, But do you not see? The majority of men have been apt to answer, No, that they did not see. The reason was that they had been taught to think certain things must be so, and when asked to look at reality unveiled they were not prepared. Intellect in this misuse of it has always betrayed the interest of religion to that of science. You may think I am using the word science in a strange connection if I say that, in Copernicus's day, what science there was declared the earth to be flat with the sun turning around it. He alone had been able to free his mind from the ancient presupposition of the rationalizing intelligence, based on sense-perception, that this was indeed the case. He saw otherwise, and when his theorem was first declared the probable comment that leaped to the lips was, Why, this is utterly inconceivable! Fortunately, his hypothesis was one of those that could be scientifically demonstrated, because it concerned, after all, facts in the realm of sense. Every scientific hypothesis is presented first as an intuition, before it arrives through detailed investigation at the certainty of objective proof. For science to despise intuition is simply to confess that it does not understand the nature of hypothesis and verification, the mode of its own advance.

Now, like the will to believe, intuition is a chosen tool of the reli-

gious consciousness. It is that power by which we see through a glass darkly. And to have given it philosophic standing and justification, as Bergson has done, is to have brought a notable help to religion. It puts in the hands of religion a tool that is fully coordinate with intellect,—a tool that reveals aspects of reality closed to the methods of science. To suppose that this involves any disparagement of intellect, is not to understand the point. Intellect is to be disparaged only when it undertakes to do clumsily what intuition can do more perfectly. The application to be made is to the history of beliefs. Men have always had these intuitions of spiritual reality, around them and within them. Necessarily they have had to express what they felt in terms of the intellect. The terms were imperfect and could not be made to agree. But belief in each of the dogmas has been absolute on the part of those who invented it and of their followers; hence the ghastly divisions and persecutions of Christendom.

Emerson expressed the kernel of it all in his *Divinity School Address* of 1838:

> "Jesus Christ belonged to the true race of prophets. He saw with open eye the mystery of the soul. Drawn by its severe harmony, ravished with its beauty, he lived in it, and had his being there. Alone in all history he estimated the greatness of man. One man was true to what is in you and me. He saw that God incarnates himself in man, and evermore goes forth anew to take possession of his World. He said, in this jubilee of sublime emotion, 'I am divine. Through me, God acts; through me, speaks. Would you see God, see me; or see thee when thou also thinkest as I now think'. But what a distortion did his doctrine and memory suffer in the same, in the next and following ages! There is no doctrine of the Reason which will bear to be taught by the Understanding. The understanding caught this high chant from the poet's lips, and said, in the next age, 'This was Jehovah come down out of heaven. I will kill you if you say he was a man'. The idioms of his language and the figures of his rhetoric have usurped the place of his truth; and churches are not built on his principles, but on his tropes. Christianity became a Mythus as the poetic teaching of Greece and Egypt before. He spoke of miracles; for he felt that man's life was a miracle, and all that man doth. and he knew that this daily miracle shines as the character ascends. But the word Miracle as pronounced by Christian churches, gives a false impression; it is Monster. It is not one with the blowing clover and the falling rain".

Truer words, and words that look deeper into the nature of the religious experience, were never spoken. Changing his Coleridgian distinction of reason and understanding into that of Bergson, we should say after Emerson, "There is no truth of intuition which will bear to be taught by the intellect. The intellect makes rigid and fixed what was free and flowing, and this alone is the origin of religious dogmatism. Religious reality is forever one with the blowing clover and the falling rain". Bergson, for those who can read him with in-

sight, has brought us to that. Of course, many would like to laugh or scold him out of court. His thinking is not free from inconsistencies. He has undoubtedly overstressed his antithesis of intuition and intellect. His work is not yet complete. His method has been called impressionism, and so in a sense it is. When the first of the impressionist pictures appeared in the galleries, the public laughed them to scorn. But those painters had seen something. They had seen real sunlight on the face of nature, a thing that art had never contemplated before; and now there is hardly a landscape painted that does not show visible traces of the impressionist influence. So it is likely to be with the philosophy of Bergson. Even those who scoff at what seem his extravagances will look on reality with other eyes since he has declared his vision. Points of view that had never occurred to men, even to thinkers, are now to be explored. He has a genuine intuition of time as real, and we are henceforth to look on evolution not as mechanically regular but as actively creative. Science will not be checked in its forward course, but it will speak more modestly on ultimate issues because a place has been won for intuition to utter again its mystic, unfathomable song. So much, at least, religion today owes to the philosophy of Bergson.

VII.

I am glad of this occasion to attempt to do justice to a great teacher and a noble spirit who has suffered a temporary obscurity, with all other German influences, because of his attitude during the war. In the case of Rudolf Eucken, as in that of Josiah Royce among us, his passionate patriotism for a time swept away his philosophic calm. He would have been either less or more than a man if this had not been so. I have no apology to offer for Eucken, the German university professor, the signer of the hasty and ill-advised manifesto of the ninety-three intellectuals, or the upholder of pan-German imperialism and the policy of annexations. I cannot believe the role to have been congenial to his own deeper nature and his more mature conviction. Because the fact remains, and in due time it is bound to be recognized, that the philosophical life-work of Eucken was consecrated to the most wholesome and needed protest against those very material and mechanical forces in the civilization of modern Germany, which culminated in its heartless and soulless attack upon civilization. When the passage of time has enabled us to see the events of the past few decades in a calmer and juster perspective, I am convinced that

Eucken will once again come into his own. His message is one that not Germany alone among the great nations of the western world needs to hear. He has diagnosed, as no other thinker known to me, the disease of our 20th century commercial, industrial, machine-mad civilization, in which the Germany of Kaiser Wilhelm II—which now has disappeared like an insubstantial mirage,—was only one of the leaders. The forces that made her what she was are still in full operation, and still need the inner check of a more spiritual and ethical philosophy of life, such as Eucken has to give. As Emerson wrote, "Things are in the saddle, and ride mankind". So long as this is true, the religious idealism of Rudolf Eucken, studied without prejudice and adapted to conditions as they forever change, will have an inexhaustible meaning for mankind. Personally, I am anticipating, at no distant day, the rehabilitation of Professor Eucken. He is now an old and discouraged man, looking out upon the fell defeat of many of his life's dearest aspirations. But his works will remain, and perhaps only after he is gone from earth can the health-giving tonic of his robust and virile protest in favor of a more human and ideal state of the world and of the individual personality in it, come into its full effect.

Eucken, though his earliest work in philosophy was consecrated to the exposition of Aristotle, is essentially a Platonist. He derives more directly from Plato and the indigenous sources of European idealism than either James or Bergson, and for this reason seems perhaps less of an initiator in thought. Yet his contribution remains a weighty one. It consists in a postulate and a method. He finds himself obliged to postulate, as underlying all the partial and inadequate manifestations of it in the world of our experience, an independent, self-subsistent, spiritual life, which is in substance what religion has always meant by God, though Eucken strives to free the idea from all its customary, crudely anthropomorphic associations. Thus, he prefers to speak of the Godhead, rather than simply of God. By this he means the spiritual ground and end of all time and all existence, of which we are able to apprehend only the merest shadows and fragments. The method of realizing this independent spiritual life, of more fully participating in it, and thus of raising ourselves from doubt and depression to confidence and joy, is not for Eucken any process of however carefully reasoned thought. He passes, with Royce, beyond the external world of description to the internal world of appreciation. His philosophy is a philosophy of spiritual values. What we supremely value, we are to seek to realize and appropriate

through spiritual work. The world of matter and mechanism will end by invading and conquering us unless we learn somehow to win the victory over it. So one of his most characteristic books is entitled *The Struggle for a Spiritual Content of Life.* We come to know God and the eternal values by enlisting on their side, and fighting the good fight of faith. Eucken may justly be called the Paul of contemporary philosophy. He has effected a transvaluation of even the values of German aggressiveness and militarism, by raising them out of the sphere of the material interests of life into that of its spiritual interests. His teaching is that which rings through the most inspiring parts of the New Testament—"for our wrestling is not against flesh and blood, but against the principalities, against the powers, against the world-rulers of this darkness, against the spiritual hosts of wickedness in the heavenly places". It is a new thing to have this spiritual athleticism clothed in the shining garments of philosophy, and urged with a combined cogency and enthusiasm which go far to make the thinker also a prophet. Eucken's ultimate message is that, in proportion as we endeavor by valiant effort to raise ourselves—through self-discipline, getting rid of all pettiness, and the active assertion of our higher will in the service of ideal right and good and truth—we come to participate consciously in the infinite resources of the independent spiritual life, we come to experience the life of God in the soul of man.

Let me close this summary of his teaching by quoting from Dr. Tudor Jones's excellent *Interpretation of Rudolf Eucken's Philosophy,* which makes its religious aspect most prominent. Says Dr. Jones:

"Man's spirit has to carry all its knowledge and experience into its own conative spiritual potencies. We thus see that everything becomes an aid to the unfolding of an ever greater degree of reality within the spirit of man. It is, then, within the spirit of man that everything finds its interpretation and value. Whatever interpretation is given to anything apart from the union of the whole potency and cognition of man's spirit is only a partial interpretation. And it is in the failure to recognize this truth that so many Life-systems have set themselves against the higher aspects of philosophy and religion. The most important question has not been asked: What is the relation and value of all results in connection with the deepest potency and necessity of man's spirit? Are these results capable of enriching that spirit of man when he becomes conscious of them? These are the questions which Eucken continually asks and answers in his great works; and it is this fact which makes his teaching so valuable, and superior to all the Life-systems of our day." Making every needful

allowance for the enthusiasm of a disciple, this is the conviction that grows in the heart as one gives himself to the reading and the re-reading of Eucken's writings. He is the apostle of a new idealism, which cannot fail of its final effect, in Germany as elsewhere.

Is it not the harbinger of a great new day for religion, notwithstanding the clouds and darkness that now overshadow some of our brightest hopes for humanity, when philosophy can bring to its aid, in a time of tremendous need and yet of limitless promise, such helps as James's will to believe, Bergson's intuition of the reality which, while it is of the warp and woof of time, may yet transcend time and touch eternity, and Eucken's independent spiritual life, of which we may say, again using the words of that loyal servant of spiritual verities, Arthur Hugh Clough:

> "It fortifies my soul to know
> That, though I perish, Truth is so:
> That, howsoe'er I stray and range,
> Whate'er I do, Thou dost not change.
> I steadier step when I recall
> That, if I slip, Thou dost not fall."

VIII.

No enumeration of current tendencies in philosophy within the limits of a single article can aspire to be complete. Yet it is impossible to omit all reference to a school of thought which just now, especially in England and America, is rapidly forging to the front, and making a contribution that bids fair to bulk large in our intellectual future. This is the group of the New Realists, among whose leaders are Mr. Bertrand Russell, perhaps the most original and significant writer on philosophical and sociological topics in the world today, Prof. Ralph Barton Perry of Harvard University, and Prof. Edward Gleason Spaulding of Princeton University, not to make the list longer.

Teh New Realism is so very new; moreover, its position is so incompletely worked out, and so difficult to grasp with certainty in so far as it has been expressed, that I cannot pretend to speak with any confidence as to the help that it may ultimately bring to religion. Its affiliations are plainly with Naturalism and objective science, yet with a difference. While religion is, almost of necessity, "tender-minded" and intimate in its relation to ultimate reality, the New Realism is resolutely "tough-minded" and ethical rather than religious in its appeal to the individual. It does not incline to think of man as a product

of the universe, but rather as a pilgrim and a stranger in an environment that is uncongenial and all but overwhelming. This position is a development of the more radical Pragmatism that we associate with Prof. Dewey and his colleagues and disciples. These men are not irreligious; they simply do not expect anything from religion as it is usually understood and practised. They class it, with art and poetry, as well as with transcendental philosophy, among the "compensations" we afford ourselves for our failure to deal successfully with empirical reality as it is given to us. Religion is a "somnambulism", says Prof. Horace M. Kallen, one of the writers in that striking volume, *Creative Intelligence,* published by Prof. Dewey and some of his school of radical Pragmatists:

"Where interests are in conflict with each other or with reality, and where the loser is not extirpated, its revenge may be just this self-fulfilment, in unreality, in idea, which philosophies of absolute values offer it. Dreams, some of the arts, religion, and philosophy may indeed be considered as such fulfilments, worlds of luxuriant self-realization of all that part of our nature which the harsh conjunctions with the environment overthrow and suppress. Sometimes abortive self-expressions of frustrated desires, sometimes ideal compensations for the shortcomings of existence, they are always equally ideal reconstructions of the surrounding evil of the world into forms of the good. And because they are compensations in idea, they are substituted for existence, appraised as "true", and "good", and "beautiful", and "real", while the experiences which have suppressed the desires they realize are condemned as illusory and unreal. In them humanity has its freest play and amplest expression".

Here is strong meat, not readily to be digested by the conventional apologist for religion. What it seems to mean is that religion is a harmless, perhaps necessary, byplay in the heavy and taxing business of life. This is Naturalism with a new and keener edge to it. Let anyone who wishes to feel its full power, urged with an almost matchless eloquence of despair, saturate himself with the gloomy pages of Mr. Russell's famous essay on "The Free Man's Worship". The essay ends thus:

"Brief and powerless is Man's life: on him and all his race the slow, sure doom falls pitiless and dark. Blind to good and evil, reckless of destruction, omnipotent matter rolls on its relentless way; for Man, condemned to lose his dearest, tomorrow himself to pass through the gates of darkness, it remains only to cherish, ere yet the blow falls, the lofty thoughts that ennoble his little day; disdaining the

coward terrors of the slave of Fate, to worship at the shrine that his own hands have built; undismayed by the empire of chance, to preserve a mind free from the wanton tyranny that rules his outward life; proudly defiant of the irresistible forces that tolerate, for a moment, his knowledge and his condemnation, to sustain alone, a weary but unyielding Atlas, the world that his own ideals have fashioned despite the trampling march of unconscious power".

Here is a "somnambulism" indeed! Before we quite yield to its potent charm, let us remind ourselves of Pascal's saying that, though man is but a reed, yet he is a reed that thinks; and of Emerson's answer to the Second Adventist who warned him that the world was coming to an end: "I can get on just as well without it!" "Omnipotent matter" may be all that will be left of this world of ours, when it has reached a stage of cold inertness like the moon. But that is a long look ahead, and meanwhile there is life to be lived and work to be done. I may venture to marry and rear a home and be happy, even though I know in advance that it cannot be forever; that our dwelling here, altogether, is but the tent of a night. Where is the religion that has not always known as much as that? Two things, said Kant, fill the mind with awe—the starry heaven above me, and the sense of duty within me. These are co-ordinate. "The trampling march of unconscious power" may end the days of man on earth, as the whirling snows of the Pole make it impossible for him to build there a lasting habitation. But does that invalidate "the lofty thoughts that ennoble his little day?" Does that forbid him to "worship at the shrine that his own hands have built?" Does that destroy "the world that his own ideals have fashioned?" I cannot see it. Neither can Mr. Russell. We are here for the day that now is, and no one has striven in it more resolutely than Mr. Russell himself. He draws from the severe logic of his Realism a strength for the soul with which to confront even this realm of "chaos and old night". No saint of any religion has ever done more. The universe does not exist for us merely as an equation to be resolved, but as an opportunity to be stoutly grasped. Admitting that more light and more truth may be about to break upon the world from the protagonists of the New Realism, and ready to welcome it when it comes, I prefer to wait for its fuller unfolding, and meanwhile not to miss its moral and spiritual urgency; its impulse to confront reality in all the ugliness, in all the brutality, in all the apparent contempt of nature for what is dearest to my heart; and its brave and tonic emphasis on working while it is yet day, and being willing to rest when "the night cometh, when no man can work".

In conclusion, let us turn to the witness of a more cheerful New Realist, Prof. Perry, at the end of his *Present Philosophical Tendencies*:

"There is nothing dispiriting in realism. It involves the acceptance of the given situation as it is, with no attempt to think or imagine it already good. But it involves no less the conception of the reality and power of life. It is opposed equally to an idealistic anticipation of the victory of spirit, and to a naturalistic confession of the impotence of spirit. In this sense all bold and forward living is realistic. It involves a sense for things as they are, an ideal of things as they should be, and a determination that, through enlightened action, things shall in time come to be what they should be".

If this attitude leans to a stern and austere morality rather than to a tender and intimate religion, if it implies a struggle for the existence of our ideals rather than their guarantee in advance on the security of the Absolute, still it is a call to spiritual heroism that we need to hear. Things in the world of today are not as they should be, and it is only by a consensus of "bold and forward living" that the present generation of men can ever remould them nearer to its heart's desire. So from the New Realism, unpromising as it might seem to begin with, there may be derived by the more resolved and strenuous souls whose day on earth is the present "horror of great darkness," a powerful help brought by this newest philosophy to religion.

THE CITY AND THE UNIVERSITY

Julian Park

Dean of the College

The era of cities is upon us. Within the lifetime of all of us, America has come to enfold a thousand miniature republics in one. Without stopping to consider the multiplex causes responsible for the unprecedented increase in the number and size of cities, statistics show us all too easily that America is rushing headling into cities, much to the disadvantage not only of the rural population, but (when one considers the resultant rise in the prices of food commodities), to the disadvantage of everyone. Whether one like it or not, the tendency city-ward cannot be checked. Every city is a cross-section, as it were, of the heart of the nation. A nation is sound in proportion to the virility of its municipalities. Because a city is the intensest unit of self-government, it becomes the thermometer of political and civic health. The one aspect of that health with which we can here concern ourselves briefly is that of education. As the grammar and high schools of every city have increased their efficiency, the city has come to realize that there should be no break in its scheme of training its children; gradually the great American municipality has been feeling that its duty was not complete when it turned its youth out into the world at the age of eighteen either to earn a livelihood at home or to seek higher education elsewhere.

Every large city today realizes this, and there is none worthy the name of great in which there is no opportunity, whether at public or private expense, to secure a continuous education. The history of the origin and development of higher education in large cities varies greatly. Many universities were established on denominational foundations, especially the older institutions. Brown University was founded by Baptists in 1764; Trinity College, Hartford, by Episcopalians in 1823; Western Reserve College in 1827 by Presbyterians, being moved to Cleveland in 1882 as Adelbert College of Western Reserve University; Northwestern University by Methodists in 1850, likewise Syracuse University in 1870, the University of Denver in 1864,

and Boston University in 1873; the University of Rochester in 1850 by Baptists, as was the second University of Chicago in 1891, before Mr. Rockefeller's interest developed; Drake University, Des Moines, by the Disciples of Christ in 1881.

Quite as common an origin, and sometimes sharing its inception with the denominational incentive, has been the development from an academy to a college, the impetus being of course the growing needs of the city. Under those circumstances were founded such institutions as the University of Pittsburgh, as long ago as 1819, under the name of the Western University of Pennsylvania; and Washington University, St. Louis, in 1853. Again, there is the type of city university which was founded altogether, or mainly, by private gift. Examples of these would be Clark University, Worcester, in 1889, Tulane University, New Orleans, in 1884 (a continuation of the University of Louisiana, founded in 1845); Vanderbilt University, Nashville, in 1873; and Johns Hopkins University, Baltimore, in 1876. Although the graduate or professional departments of the first and last of these are their most important contributions to scholarship, they are still in and a part of their community.

Finally, there is the purely municipal type, supported wholly by the city. In this respect the United States has fallen behind England and Germany, for practically all the city universities of England are municipal, and in Germany, though a recent development, it is showing great strength. In America only three were founded as municipal institutions—the University of Louisville in 1837, the College of Charleston, 1837, and the College of the City of New York, 1847. The others which have become municipal after their founding are: University of Cincinnati, 1871; Hunter College (Normal), New York, 1870; University of Toledo, 1884; University of Akron, 1913, continuing Buchtel College, founded in 1870. Partaking of the characteristics both of the endowed type and the purely municipal type are several institutions which are becoming rapidly more numerous—those which approach the municipal type in their cooperation with city departments or civic activities. Some of the many examples which might be cited are New York University, which, notable among all its other forms of cooperation, conducts classes for city employes, held in the municipal building; the Mellon Institute of Industrial Research, of the University of Pittsburgh, which takes over from manufacturers important industrial problems offering reasonable chance of solution; going from the utilities to the humanities, we find in connection with the University of Rochester, the Eastman School of

Music, the recipient from George Eastman of four and a half million dollars, the chief features of which are the provisions for developing a more popular appreciation of the contribution which music may make to our common life, and hence markedly raising the level of general culture not only in the university but in the city as a whole.

The University of Cincinnati

By far the greatest municipal university in the world is that of Cincinnati.* It receives less than five per cent. of the city revenues, and yet it is a genuine university with Graduate School, College of Liberal Arts, College of Engineering, a Teachers College, Medical College, College of Commerce, School of Nursing and Health, School of Household Arts, Kindergarten Training School, Observatory, Municipal Reference Bureau, Bureau of City Tests and affiliations with numerous other schools, hospitals, libraries and public institutions of the city. Connected with its own library are the incalculably valuable collections of the American Association for the Advancement of Science, and of the Historical and Philosophical Society of Ohio. Its relations with the various schools of music, the public art collections, the zoological garden, the public schools, are such as to make practically every intellectual activity of Cincinnati a part of the university life.

And yet with the constantly increasing cost of everything else the expense to Cincinnati of each student has constantly decreased. In 1874 each scholar cost the city $350 per year, in 1885 only $190, and now but a little over $90. This is indeed providential; for seventy-seven per cent. of the students are of parents with no higher education whatever; they are truly the products of the average American people, and possess little surplus means.

It was at this institution that the famous cooperative plan of theory and practice in technical study—commonly called the Cincinnati plan—originated. The student of engineering, for instance, may take either the four years' theoretical course, or the five years' cooperative course, the latter being by far the more valuable. In this two weeks of class work alternate with two weeks of actual shop work for wages throughout eleven months of the year for five years. More than eighty manufacturing firms of the city cooperate in this plan, and the student graduates with a knowledge so practical that he is of im-

*The following paragraphs descriptive of the work of the University of Cincinnati are by Professor Carl Holliday, of Toledo University, in "School and Society", November 24, 1917.

mediate value to an industrial plant. He receives not only wages, but college credit for his work in factory or mill; for a supervisor, known as a shop coordinator, a technical graduate with thorough experience, spends his mornings with classes at the University and his afternoons with students in the shop, watches closely the efficiency and speed of production of each college worker, credits him according to the ability shown, and later explains the function and purposes of the article produced by the scholar-apprentice. It has been called "the most significant movement in all educational history; for it fulfils every item in the theory of learning by doing". It has spread to numerous other schools of engineering and scientific study, and will in time be the only recognized way of gaining technical knowledge.

And what else is this educational dynamo doing for the industrial and civic life of Cincinnati? Its various medical departments serve free nearly eighty thousand patients per year. Its orthopedic dispensary annually examines, treats and supplies with mechanical helps many hundred cripples. Its psychological clinic investigates the causes of retardation in the city's defective students, prescribes the proper studies and methods, and has led to the creation of a special public school for retarded children. Its Teachers College has trained nearly 800 of the 1,100 teachers in the city schools, examines applicants for positions in the system, recommends instructors for promotion, offers to city teachers certain courses which automatically lead to an increase in salary, and with the cooperation of other university departments doubled the municipal school appropriation in two years, and raised the standard of the teachers probably above that of any other city corps of instructors in America. The Department of Political Science maintains a reference bureau where one may find collected and digested all information that council, city officer or general public could desire in the field of civic activities. The Department of Social Science cooperates with the juvenile court in furnishing volunteer officers, with the city department of charities and corrections in obtaining means of relief, with the House of Refuge in making vice investigations, with the Associated Charities in searching out genuine needs and frauds, with the Anti-Tuberculosis League in making health surveys, with the Union Bethel and the Jewish settlement in club work and collecting statistics, with the Juvenile Protective Association in surveys of the needs and dangers of the young of the city, with the Council of Social Agencies in surveys of social conditions, with the Social Workers' Club, Consumers' League, and a host of other organizations. The University performs all chemical and microscopic

work for the city hospital; the students of engineering serve as assistants in the city engineering department; the engineering instructors serve as consulting experts in problems of the waterworks, street car system, and telephone system. The School of Household Arts cooperates with the General Hospital. The directors of the Observatory provide declinations and geographical coordinates to city surveyors and engineers, and offer free lectures on astronomy many nights of the year. The College of Commerce aids the Chamber of Commerce in making industrial surveys and estimates, and in gathering statistics. The children's clinic maintains several milk stations and sends nurses throughout the city to train mothers in the care of their babes. The Department of Botany has charge of the city bird reserve and school gardening, and aids in the management of the famous zoological garden. The Colleges of Liberal Arts and Commerce maintain throughout the city night classes of college rank five nights in the week, enroll each year over 600 students in such courses, and offer annually over 200 lectures which are attended by thousands. The Bureau of City Tests analyzes and estimates the value of all material to be purchased by the city, such as antiseptics, asphalt, cement, burlap, oils, coal, paints, rubber, roofing, soaps, and the firm that attempts to flim-flam the city of Cincinnati is apt to be fooled. For among the frauds discovered by this bureau, to the profit of hundreds of thousands of dollars to the city, are the following: paint with 22 per cent. benzine instead of turpentine; carbon black paint almost entirely mineral graphite; bad cement; coal with 44 per cent. ash; cylinder oil that was worthless in cold weather; sand of low grade; and rubber pump valves made entirely of vegetable fiber.

Does all this seem too utilitarian? Certainly bread and butter aims in education are generally regarded as characterizing the municipal university, and there is no doubt that most such institutions make their chief bid for support on the record of their vocational work. This fact is not unrecognized by the universities; at a meeting three or four years ago of the Association of Urban Universities a timely protest was voiced against the direction a too practical municipal citizenship would give their educational policies. The president of the University of Akron is reported as having warned his colleagues against the dangers of "field work". He could undoubtedly find plenty of evidence for his assertion that the billeting of students to serve municipal departments is likely to lower academic standards, if not to warp the student's conception of the aim of higher education. The representative of Boston University, similarly, in deploring the

fact that "save for the very few, there is little of scholastic habit among the students" of the modern university world, made a special plea for the humanities in the urban college.

In this the burden of proof to a considerable extent is on the college. Every professor knows the desire of the average student to finish his college course and grapple with his professional studies. Though part of this feeling may be due to impatience to get out into the world, much of it certainly arises from a realization that at last one has come into a sphere where thinking means action. The college, with its too often scattering, diversified, and rather unexacting labor, is cheerfully exchanged for the grind of the professional school, because the latter touches a real world—the vocational world.

But to link up the college with the real world is not always practicable, any more than it is always desirable. There ought to be opportunities permitting us to escape sometimes from the real world: how often nowadays the "world is too much with us". But deplorably low as is the interest today in study for the intellectual joy of it, in acquiring general rather than specific culture to the end that one may be more interesting to oneself and to one's fellows, to the undergraduate study must be presented more attractively. While it may not be possible to combine in all the abstract studies purely intellectual interest with their relation to the life the average student will lead after graduation, this may be done in enough cases so that he will take the abstract studies as preparation for the concrete, and find in the long run that they were as important. When a teacher in whom the student has implicit trust counsels him that even in medicine knowledge, for instance, of Latin will be found to contribute things directly and indirectly which nothing else can, great will be the student's joy when he finds that the teacher was right. When premedical students spend an extra year or two in college beyond what is required, at the age of forty they will find that by using the time when an extra year was nothing, they have laid up for themselves pleasure as well as profit which is of incalculable value to them.

"This college prepares for the living world". Such a sign, in effect, is placed over the portals of every growing college—or, no doubt, it would not be growing. Does that mean that students are encouraged to take only courses which prepare for vocations? Then the college becomes merely a professional school and an elementary one at that, for the best professional schools require a certain amount of college work as preparation. Whatever amount is required, the very fact that some college work is necessary vindicates the outstanding

value of a college education for the professional man: the disciplined mind is the best tool for doing any work.

The University of Buffalo

In all this we have been getting away from the concrete to the abstract. It was among the purposes of the present paper to show how the University of Buffalo, without being a municipal institution, is already cooperating to the best of its ability and resources with the city, and how necessary it is to the city—to its level of general culture as well as vocational efficiency. To begin first with the College of Arts and Sciences, we find a carefully graded curriculum, practically all the subjects in freshman year being prescribed, more latitude allowed in sophomore year, with almost complete freedom of choice in electing the studies of the last two years, except that no student is graduated without having completed courses in psychology and philosophy. Elections of studies are, however, somewhat limited by the so-called group system, the endeavor having been make to construct a reasonable and flexible group system which shall leave adequate freedom for individual needs and abilities and at the same time prevent undesirable scattering of the student's energies. In brief, the group system provides for the arrangement of all departments of instruction in three groups, and requires that each candidate for the Bachelor's degree shall have completed courses totalling a credit of twenty-one year hours in each of these three groups. Within these groups are courses, to be elected during the upper-class years, which link up several of the resources and needs of the city with college work.

A New Teacher-Training Plan

Certain of the great educational agencies outside the University have recognized that in the College of Arts, small at present as it is, there are opportunities for cooperation which, as the new institution expands, can easily be developed. In certain cases precedents have been established which are likely to have a wide-spread effect. This is particularly true of the "Buffalo plan" of teacher-training. Last December and January the details of a far-reaching plan were perfected whereby all the existing institutions of the city for the training of teachers will be closely coordinated. The most striking feature of the new plan is that it permits an ambitious student not only to secure a university education at small expense but to earn the cost of the course at the same time that he gets the benefits of a college training.

Besides bringing into close cooperation the three great educational agencies of the city (which alone would make the plan unique), it will add to the city teaching staff teachers not only unusually well educated but specifically trained to meet the needs of the Buffalo system. Under this scheme it is possible for the ambitious, adequately prepared student who desires a college education to secure one in five years (although many candidates will need six or seven), of which the first two, in the Normal School, will require no payment for tuition and the others will be under full pay as a regular teacher; and all this without leaving home.

Experience of other universities was drawn upon, and it was found that several institutions, including Columbia and Wisconsin, give full credit for a properly conducted normal course, amounting to the two full years of such course, toward a Bachelor's degree. Normal graduates, who had entered the Normal possessing the University's entrance requirements for the science course, are to come to the University as juniors, bringing with them 64 hours' credit toward the 128 semester hours required for the B. S. degree. They take at least one college course, and at the same time, at one of five special centers to be established, carry on their school teaching, under the supervision of a member of the University faculty, who observes the work of these young teachers, or, as they may be termed, probationers. If they are successful in these centers they receive permanent appointment and while teaching may continue their University studies until such time as they have completed the necessary 128 hours, when the B. S. degree is conferred. Twelve semester hours for teaching experience may be included among these 128, reducing the number necessary at the University proper to 52. The University is to consider these 12 hours in the same light as laboratory work, for it is practical work done under the supervision of a member of its faculty.

Further to justify the consideration of the Normal course as of college grade, the State Department of Education has authorized the Normal School to revise its curriculum so as to include college courses in freshman English and freshman history. Consequently, these two courses, whether taken at the Normal or the University, are required of those wishing to take advantage of this scheme. The University is not to confer the degree until the student shall have also had accepted a satisfactory thesis, which must show powers of concentration and research in the subject chosen.

This step has been taken not only to increase the efficiency of every Buffalo school teacher, but to do what can be done, apart from

increasing salaries, so to increase the attractions of the profession as to counteract in some degree the appalling desertions from its ranks. Its prestige can at least be enhanced by making it possible for ambitious and deserving men and women to secure a college degree without cheapening that degree. Now that Buffalo high school teachers must be college graduates, a university degree will have added value. While it has been decided that all teachers planning to begin their work in Buffalo must take a course called college civics, (which will, because it is compulsory, be offered gratuitously) it is expected that only the more ambitious will care to go on; for the standards will be high and the courses conducted strictly enough to weed out a certain number.

The proposal met with the approval of the State Department of Education, the following letter having been received from Commissioner Finley:

Dear Mr. Hartwell:

The general program outlined by you, with the co-operation of Principal Rockwell of the Buffalo Normal school and of Dean Park of the University of Buffalo, points the way to a general plan for the recognition of our reorganized normal school courses of instruction on the part of colleges and higher institutions, which will make more attractive the opportunities of our teacher-training institutions. It is an illustration of splendid co-operation on the part of the institutions and the authorities of the city, to meet in part the teacher-training problem. Even though only a limited number may take the advantage of the opportunity which will be open for a full college course, the very fact that the way is open for continued training in cultural and scientific courses beyond the normal school will prove a vital factor in interesting young men as well as the young women of the city in the importance of the teaching profession.

Cordially yours,

(Signed) JOHN H. FINLEY.

Even before this scheme was perfected the School Department has consistently, in one way or another, shown its belief in the work and in the destiny of the college. When it was established, in 1913, a great many of the courses were taught by high-school teachers, and, even when the growing number of full-time professorships and instructorships has made such help less necessary, a number of lectureships and other positions on the college faculty are still held by men and women in the School Department, to the advantage of both col-

lege and department. Several other part-time lectureships, it may be here stated, are held by men who are not teachers by profession. In this connection it may be well to quote the remarks of President Hadley of Yale, speaking at an alumni meeting last February:

"In intellect as in business, the community today is more concerned with using up its accumulated product for current purposes than with making arrangements for the replacement of that product. But it is a vital necessity for the country's future that arrangements for such replacement shall be made; that capital shall be accumulated in the intellectual world as well as in the commercial world; that the supply of men who are at once trained specialists, trained citizens, and trained gentlemen shall be maintained at the highest level.

"Three things are requisite for this purpose. First, a general increase of salaries in the teaching profession. . . . Second, the development of a system of part-time professorships, whereby men can do teaching and outside work at the same time. This idea has been effectively developed on the continent of Europe; and this is one of the reasons why continental universities have a stronger influence on political life and business life than American universities. It helps the students to have their teachers something more than mere theorists. It helps the graduates to have been taught by men who know how to place them in service most effectively at the beginning of their careers. It helps the universities to have the public look to them for guidance, and recognizes the importance of receiving from them a constant stream of men trained in the qualities of leadership".

It is an accepted principle (though less accepted now in medicine than it used to be) that men in professional schools shall largely be taught by those in the active practice of their professions, but that this may be also done to some extent in arts colleges puts forth a significant idea. May President Hadley have been actuated somewhat by the shortage in the teaching profession?

Not only does the Buffalo School Department contribute to the teaching staff of the college, but it encourages its grade- and high-school teachers to pursue studies at the college which will benefit them professionally. This opportunity,—never available prior to the establishment of the college except during the short lifetime of the University's Department of Pedagogy,—has been largely taken advantage of, this year more than 300 teachers being enrolled as special students. It will be some years before most of them will be able to secure sufficient credits for a degree, but the college has made every allowance for these public-spirited teachers, who sacrifice much time, money,

and convenience to increase their usefulness to the city and their own mental resources.

In view of the fact that the School Department has entered upon the important enterprise of erecting twelve new intermediate, or junior high, schools*, for which the teachers have yet to be trained, the college this year has added facilities for training teachers who expect to work in the various departments in the new type of schools.

Cooperation With Other Agencies

There are two great public libraries in Buffalo—the Buffalo Public Library, and the Grosvenor Library, the latter of which is a reference collection only. In the various phases of library work, which has now become one of the distinctly learned professions, requiring for success a large amount of highly technical skill as well as temperament and intelligence, there are no facilities for instruction nearer to Buffalo than Syracuse; and such instruction is more successful when provided in connection with an institution of higher learning than when offered only by the library, no matter how large, for training in library work demands a background of general culture and information of the diversified nature that a college can best furnish. The two public libraries, working together and through the University, now offer practical training in library science which eventually, no doubt, will lead to a definitely organized department, with ability to confer degrees. One of the features of the work as already established is the fact that the libraries give compensation to those in training. Next year eight courses will be offered, the teaching staff consisting of those in the libraries who are in charge of the various departments.

Other agencies of general culture in the city are numerous, such as the Albright Art Gallery and its art school, the Buffalo Historical Society, and the Buffalo Society of Natural Sciences; many, too, are the public and private opportunities for musical culture. Among the eminent visitors who come to the city every year are those contributing to the lecture courses, conducted by the University, (whose outside lectures are always free), D'Youville College, the Normal School, the School Department, and numerous private organizations. For several winters the secretary of the Buffalo Historical Society has given before

*The "Buffalo Plan" of intermediate schools, and the training of teachers therefor, is described at some length in the April, 1919, issue of the University of Buffalo Bulletin, which may be had on application. The articles are by Superintendent Hartwell and by W. Howard Pillsbury, secretary to the Superintendent, who is a lecturer on education in the University faculty.

the University a course of four or five lectures on the history of the Niagara frontier (which, incidentally, forms the subject matter of a regularly constituted college course in the history department).

The University is effectively cooperating with the many activities of the Society of Natural Sciences, rendering service in collecting and classifying material and in other ways making the college's scientific departments of use, but particularly, this year, in connection with the society's newly organized and very popular sections for the study of various applications of modern science. The college faculty has supplied chairmen for three of these "hobby clubs"—the sections on physics, biology, and philosophy.

Extension work is one field where of course the city university, as the country college cannot, may bring education to those who will not come to it. Many urban universities have specially organized extension departments, with professors giving up their whole time thus to popularize education. However that may be, all of them can, and apparently do, offer some work not taken inside the college walls. During the winter of 1920 the University sent a circular to every school, church, social and educational organization in the city offering, free of charge, the services of many of the college faculty to those desiring popular lectures, most of which were illustrated from the lecturer's own collection or from the pictures belonging to the college. Many organizations took advantage of this offer, and even from outside Buffalo came numerous requests.

From the very beginning, seventy-five years ago, much of the growth of the University came by satisfying specific needs of the community along professional lines. The institution was founded by physicians aiming to fill the need in this part of the state of facilities for medical training; similarly, when the other departments were founded, the initiative came from the leaders of their respective groups. Does such a growth seem too spontaneous and informal? Should such demands be anticipated, rather than followed? If so, a considerable endowment would have been necessary, and endowment for many years the University lacked.

A city university such as Buffalo's, being necessarily non-sectarian and co-educational, appeals to groups of citizens of more diversified character than can any other. Bearing the name of the city rather than of an individual, the University links the city's name with its own success or failure. Buffalo graduates are practising today their professions in Egypt, Belgian Congo, China, Syria, Japan, France, Hawaii, Porto Rico, besides in practically every state in the Union.

Civic pride, then, must be one of the chief motives actuating the benefactors of a city university, as well as the obvious object of popularizing education. The municipality of Buffalo in turn may well take pride in the civic spirit of those individuals and groups who have already contributed scholarships and who will shortly be called upon to bear their share in the coming campaign. The growing popular interest in the institution is clearly evidenced by the growing number of such groups. It is also evidenced by the growing number of groups who think rightly that the University can do something for them. Instances of this are becoming numerous. A large group of social workers, feeling the lack of a cultural background for their practical field work, ask the college to inaugurate a course in sociology in which the present problems of American society will be constantly under consideration. The course is offered and found to provide the desired background: the result—a group of enthusiasts for the University where before there was indifference. The Red Cross, in connection with the City Health Department and Department of Hospitals and Dispensaries, and with the District Nursing Association, asked the University last fall to offer a post-graduate course in public health nursing, which has proved so satisfactory as to attract attention from distant localities. When the course is repeated the coming fall, it is expected that more will apply for entrance than can be accommodated.

In other ways besides those mentioned are city activities linked up with what the University can even at present offer. Various organizations use the auditorium of Townsend Hall, when it is available, for meetings; medical societies, similarly, hold meetings in Alumni Hall of the High Street building. The medical building is constantly in use for other purposes than strictly for instruction. A post-graduate course for public health officers has been organized, and will be again offered, though not in regular years. A large majority of the health officers in the towns throughout Western New York have already availed themselves of this work, which it seems likely will some day lead to a definitely organized post-graduate department, conferring the degree of Doctor of Public Health.

The most important evidence, however, of coordination between the University's Medical School and the city is the arrangement entered into this year between the Department of Hospitals and Dispensaries—recently organized under one management—and the University, which not only is favorable to the best interests of medical teaching in that it places most of the clinical resources of the city at the disposal of the medical faculty, but shows the confidence of the

municipality in the conduct of the Medical School. All members of the medical faculty have appointments as attending physicians or surgeons at the City Hospital, and the heads of the various departments in the school are physicians- or surgeons-in-chief. This does not mean that the connection between the Medical School and the General Hospital, a harmonious connection which has continued between sixty and seventy years, is dissolved or even made weaker, but that the City Hospital, new, rapidly growing, and municipally controlled, and the Medical School, which eventually will be moved to the North Main Street site in close proximity to the hospital, are logical institutions for parallel growth.

In the University Dental School there is maintained one of the city's health centers, where those who are unable to pay for dental care may obtain it; here fifteen chairs are continually busy. Moreover, through private benefaction there is the new Victor Hugo Jackson Clinic of Oral Surgery, where the poor may have not only their teeth extracted, but even more serious operations performed, such as removal of the tonsils. The Dental School shares somewhat as does the Medical School in the arrangement with the City Hospital, the faculty having charge of the dental department and each teacher being a consulting member of the staff. The general dental clinic of the School contains one hundred operating chairs for general use. For the last few years an average number of 25,000 operations has been performed in this clinic, practically at cost, such clinical material furnishing a wealth of experience to the student which fits him for the immediate practice of his profession upon graduation, after the four-year course.

Other departments of the University which should be mentioned are those of Pharmacy, Chemistry, and Law. Buffalo is located in such a strategic position as regards opportunities for research in industrial and other kinds of chemistry that a separate department devoted to that subject was constituted by the University in 1906. Some day these courses will develop into a full-fledged engineering school, and already the various engineering industries along the frontier are expressing interest in such a development. Recently one of the large chemical companies gave the sum of $25,000 to enable the University to enlarge its research facilities, with the proviso that if anything be discovered which may prove of value to it, the University give the company an option on the formula. This is a common procedure in the industries; while it may have an element of selfishness, it is a form of selfishness which not only enables the institution to en-

large its facilities for research but encourages the spirit of initiative among the research faculty.

Without mentioning directly all the other possibilities for co-operation and coordination which might present themselves, such a survey as this ought not to close without suggesting that many exist. Nothing has been said about correlating some of the instruction and thinking that is being done in the humanities as well as in the sciences and industries. The term *universitas* was originally employed to denote any community or corporation regarded under its collective aspect. There is no reason why the work or scope of a university should be limited by the fields in which its faculties do their teaching or research. A position of intellectual leadership in the community belongs by right to the university, a position which it may assume, without presumption, by encouraging many kinds of manifestations of civic spirit. A scheme of recognizing merit by the bestowal of medals for excellence in various fields is a civic function which a university might properly adopt, for the gold medals awarded at different intervals by universities like Columbia are eagerly coveted. More than any other agency—even the Church—the University is morally committed to practical idealism.

No college today has fully risen to the importance or the privilege of its opportunity. On the other hand, it is equally true that the average city does not make nearly the use of its university that it should. No institution in the land has a destiny richer in its potentiality than this seven-year-old college in a seventy-year-old University. No city is great unless it rests the eye, feeds the intellect, and leads its people out of the bondage of the commonplace. Buffalo—every city—has agencies which do one or another of these things, but to do all three it must be blessed with the moral reservoir of higher education.

EDITORIAL NOTES

The policy of the "University of Buffalo Studies", of which this is the second number, will be to publish original articles by members of the faculty on subjects of general rather than of technical interest. It will also from time to time publish addresses delivered by distinguished visitors at the University.

No regular sequence of issue is planned for the "Studies", but it is hoped to publish three or four issues during each academic year. Certainly there is ample material, for, now that such a medium is established, the loyalty of the faculty will persuade it to contribute generously to their own magazine as well as to outside publications. In the Faculty Bibliography for 1919, which appeared in the "Bulletin" (the official publication of the College of Arts) for April, 1920, it was found that between thirty and forty per cent. of the faculty had found time, in addition to their teaching, to contribute, in some cases largely, to various periodicals.

Faculty of Arts and Sciences, 1920-21

Albert P. Sy, Ph. D., *Professor of Chemistry.*

Philip Becker Goetz, B. A., *Professor of English, and Acting Professor of Latin and Greek*

Julian Park, Ph. D., *Professor of History*

Wilfred H. Sherk, M. A., *Professor of Mathematics*

Daniel B. Leary, Ph. D., *Professor of Psychology*

Edward J. Moore, Ph. D., *Professor of Physics*

Albert R. Shadle, M. A., *Professor of Biology*

William V. Irons, Ph. D., *Professor of Inorganic Chemistry (Faculty of Chemistry)*

C. Merrill Brown, M. A., *Assistant Professor of Chemistry*

Thomas F. Cooke, M. E., *Assistant Professor of Physics*

M. Smith Thomas, A. C., *Associate in Education*

Felix A. Casassa, B. ès S., *Associate in French*

P. Frederick Piper, B. S., *Associate in Geology and Astronomy*

Francesco E. Di Bartolo, B. A., LL. B., *Associate in Italian*

Carl Wachter, B. A., *Instructor in Public Speaking*

Mme. Marie L. Casassa, B. ès L., *Instructor in French*

Octavio Soto, C. E., *Instructor in Spanish*

Carl F. Siekmann, *Instructor in German*

Edward W. Sine, B.A., *Instructor in English*

Ferdinand F. Di Bartolo, B. A., *Instructor in Italian*

M. Arlouine Chesebrough, B. A., *Instructor in Biology*

Mme. Julie Joly, *Instructor in Russian*

Albert H. Hopkins, B. A., *Instructor in Mechanical Drawing (Faculty of Chemistry)*

Charles E. Rhodes, M. A., *Lecturer in English*

Mary Hammett Lewis, *Lecturer in Education*

Charles W. Whitney, Ph. M., *Lecturer in Economics*

Augustus H. Shearer, Ph. D., *Lecturer in History and Library Science*

Walter D. Head, M. A., *Lecturer in Education*

Louisa H. S. Lawton, B. S., *Lecturer in Education*

W. Howard Pillsbury, B. A., *Lecturer in Education*

Harold L. Olmsted, B. A., *Lecturer in the History of Art*

Richard F. Morgan, Phar. D., *Lecturer in Bibliography*

Richard W. Boynton, D. D., *Lecturer in Philosophy*

M. Katherine Bryan, *Lecturer in Education*

———————————, *Lecturer in Government*

THE UNIVERSITY AND THE CITY*

MURRAY BARTLETT

President Hobart College

Throughout the long history of education, that world process by which man has been led out from ignorance into knowledge, there may be seen two tendencies—the contemplative and the practical. The first tendency leads man, by thinking, to take the measure of things; to look deep into the mystery of the universe for its underlying principles, to discover the meaning of life and its ultimate destiny; to take apart and put together the objects of experience so that he may truly know them. The second tendency impels man to use the truth he has found for his improvement and his profit, to apply his knowledge in every conceivable way to getting results which will alleviate his inconvenience, increase his possessions, contribute to his happiness.

These two tendencies in education, intimately related as they are, have been expressed by two types of institutions; on the one hand, the seat of learning that has grown up about the personality of famous scholars, to whom the people come; on the other hand, the school, or group of schools, that has found its field for work in the centers of population where the people are and where their needs have demanded it.

So, in America, as in the old world, we find, perhaps, in a very small village, far from the lure of material wealth, a great seat of learning, built upon the fame of years of scholarship, to which hundreds of youths come from far and wide. So, also, in nearly every great city, we find, where furnaces roar and wheels of industry turn, some school of technology; where great hospitals are filled with sick and maimed, some school of medicine; where judges and lawyers are grouped about the courts, some school of law.

Yet, there is no vital difference, no closely defined boundary between the contemplative and the practical in education. If, at first sight, the latter seems of more importance, a little thought will convince us that each is as valuable as the other. The most specialized

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*Address to the graduates, Seventy-fourth Commencement, June 11, 1920.

applied science upon which great industries have been founded and great fortunes created could not exist without the basis of pure research. Every invention which has revolutionized industry, every process which has called into being new sources of wealth, every method which has increased business efficiency, every practical alleviation of our unhealthful or unclean conditions have been brought about only because, perhaps years before, some obscure devotee of scientific truth has sacrificed and labored in the quiet shrine of his laboratory.

It was, of course, quite natural that in this great city there should have first grown up about its hospitals and dispensaries, under the influence of its justly honored physicians, surgeons and dentists, a medical and a dental school; about its federal and state courts, under the influence of famous jurists and lawyers, a school of law. The professional schools of the University of Buffalo have had a merited reputation, built upon a solid basis of professional character and achievement of which you may be justly proud. Those who co-ordinated these fine schools and raised them to their present high standard should be numbered among the true benefactors of this community and city.

It is, however, just as natural that the development of this city university has not stopped at the professional schools. It was inevitable that your institution should reach out into what are called the liberal arts, for the same rule of practical value to the interest of the city demands it. What medical science is to the hospital, what legal research and study are to the courts of justice, the liberal arts are to the industrial and commercial elements in the life of the great modern city.

Just as the wealth of the country has been multiplied a hundred fold by the practical application to agriculture of the results of research in the laboratory of the biologist, so the physicist and the chemist, working quietly and devotedly with the single aim of adding to the sum of knowledge, have made possible the development of modern industry, by the application of the truth they discovered to the factory, the furnace and the power plant.

Modern industry has captured physics and chemistry and marked them for its own. It could not exist without them. I was informed not long ago by the head of the department of physics in one of our greatest universities, where for years its graduates had gone into college work or research, that every one of his candidates for the Doctor of Philosophy degrees had been engaged months in advance of his graduation by a great electrical corporation.

The best equipped laboratories for chemical research are no longer to be found in college or university; they are supported by industrial corporations. In more than a few of these, the widest liberty of individual research is encouraged and stimulated. Lines of special study are carried on with no apparent connection to the specialized products of the factory, because the wisest business acumen has seen that there is no discovery of value to pure science that may not some day have a practical application. I saw the other day in our own college laboratory a catalogue of rare chemical products for use in college and research laboratories. They were produced and offered at a low cost by the research laboratory of a great manufacturing corporation of Western New York, a tribute of successful business to the pure science on which its development had been based. Another great industrial company representing millions of investment, provides annually scholarships amounting to thousands of dollars to students of chemistry in liberal arts colleges.

Take another science which has been recently applied to industry to a surprising degree, a science which, until a few years ago, was classed among the "humanities"—psychology, the study of the human consciousness and its reactions. Applied psychology, as we have it today, is the result of long years of careful, painstaking research in the physical reactions of the nervous system and their results in the mental life of man. The results of such study were first applied with a highly altruistic motive to understanding and improving the education of the child mind. With no thought of material gain, here, as in many other instances, the educator has been the pioneer in methods which have tremendously increased the efficiency and earning power of the modern structure of national and business life.

In the modern general staff, as developed by the great War, there is no more important function than that of the psychological section. The placing of men where they will be most efficient, the moulding of public opinion in the lines and behind them is the secret of a successful issue. So, in the world of commerce applied psychology has tremendously affected the whole organization of business and the process of selling. The manager of a great department store in one of our largest cities told me the other day that in the educational department of his establishment there were seventy people—trained teachers and their assistants. Each salesman was thoroughly taught every thing about the articles he handled and how to sell them. Why was this done? Because it paid. Where did it come from? From the department of applied psychology in a great school of applied liberal

arts, which is the pride of that city. Here, in this school, I found three hundred picked agents sent by the great insurance companies for a course in salesmanship. Here, too, I saw a student with but one year of graduate study, who had been engaged by a New England manufacturing company to take charge of its personnel department, at a salary which very few colleges could pay after several years of service.

There is hardly a liberal study which has not just as great a practical value. Take for example, ethics. If there is any study which is contemplative in its nature, it is ethics. Behind its long development stands the seer, the dreamer, the thinker; yet, really successful business needs the application of ethics as it needs the application of psychology. Ethics is the science of conduct and there is nothing more important than the *conduct* of business. Ethics is the study of human relations and business is a matter of *human relations.* For what is business, but a relationship between employer, employed and consumer? If there is any real danger in our American civilization, it is because this relationship is out of gear.

There is something fundamentally wrong in our ordinary conception of industrial relations. We think of industry as founded upon capital and labor. We think of labor as hand work, and of capital as head work and we put hand work and head work together and call that production. We have left the most important thing out—heart work. Unless the laborer puts his *heart* in his work, it is not good. Unless the employer puts his *heart* into his business, it is all wrong. The heart element is the human element, and for the safety of our American life we must put it into our industrial life. The great need of industry today is an ethical basis, for the unrest and discontent all about us tells us that a scientific basis, no matter how complete, is not enough.

We must apply the liberal study of ethics to business, just as we have applied the liberal study of physics, chemistry and psychology. Now, applied ethics may be summed up in one word—service—and the essential nature of business is service. The employer serving the employed, the employed serving the employer and both together serving the public—that is efficient, successful business. The principles of ethics applied in service is the only possible cure to the twin cancers that are today eating into the life of the country—selfishness and senseless extravagence. This is the vital function which the study of ethics has to play in the life of the city, and it is enforced by the

lesson of history and sociology and the culture of every ancient and modern civilization.

It is, then, the liberal arts college which must supply the vital soul to the efficient, prosperous and happy city. So there is nothing that should appeal more to the city business man, but how can the college fulfill its mission unless it is adequately and devotedly supported?

The demand for efficient specialists in science, applied to industry and commerce, cannot be supplied without the best possible men to train them. If young doctors of philosophy are snapped up at high salaries for business the eminent men who trained them will follow. This they have done and are doing in large numbers. What a fatal and absurd situation! The training schools are depleted of professors and instructors and the most vital need of modern industrial society is stopped at the source. No one knows this better than the president of a college. How to keep the efficient men he has and how to get others to help them in their all-important work, is a heart-breaking problem. It can not be that this great city, so progressive and forward looking, on this auspicious day, when ground is broken for a great college building, will neglect its adequate and sufficient support. Surely, it will make ample provision for an efficient faculty, secure in their positions and free from financial worry. For it is neither buildings nor equipment which makes a college, but *men.*

If there is any truth in what I have said today, there is no one more important to the city's life than the college teacher. May the people of this great city show their appreciation of his altruistic and self-sacrificing service and so set an example to the people of America in the recognition of the debt they owe to the college teacher.

Thus far, I have spoken from an extremely practical point of view, which may be measured in material results, but there is something more vital in the relationship of university and city than the increase of industrial and commercial wealth. It is the great spiritual mission of knowledge which is only to be found in the love of knowledge for its own sake, not for what it can get, but for what it is. The small college is humble before the great university; it is proud to be able to do a small share of a greater work, but the small college has, I believe, a real message in these days of specialized work—the eternal spiritual value of the love of knowledge for its own sake. No city, no country can truly endure without it. It was the glory of

Athens, and Athens fell when she lost it. It was the glory of Germany, and Germany fell when she lost it. Remember, commercialized knowledge is not *truth,* and the greatest danger in this industrial age is that we may think it is. The noblest and most sacred mission of any generation is to hand on the torch of truth to those who come after.

That fateful day, when Constantinople, the guardian of the precious learning of the past, fell to the invading Turk, the priceless treasures of all that was best in Greek civilization were threatened with destruction. Then it was that brave and faithful keepers of the truth, hiding the beloved manuscript in the folds of their garments and leaving all behind them, fled into the mountains and the deserts. There they braved hunger, persecution and death, that they might hand on the sacred torch. We, today, and all that have gone before us, are their everlasting debtors.

So, let us never forget that the real mission of the university, set in the midst of the busy, thrilling city life, is to hand on the torch of truth—the love of knowledge for its own sake.

Old Omar, the tent-maker, sings of the schools of his day:

> "Myself, when young, did eagerly frequent
> Doctor and Saint, and heard great argument,
> About it and about; but evermore
> Came out by the same door wherein I went."

The tragedy of much of the education of our day is that the student, intent upon that which will increase his earning power, unchanged in vision, in purpose, in human sympathy, comes out the same door wherein he went.

It will not be so here, if together with all the practical knowledge that makes men efficient, there burns brightly in your university the the sacred torch—the love of knowledge for its own sake.

AUSPICES

Verses read at the breaking ground for the first building of the Greater University of Buffalo at the new site, June 11, 1920.

PHILIP BECKER GOETZ

Professor of English

In the beginning the warm hand of God
Made fine and molded soft the stubborn clod,
And out of silence drew both sigh and song,
And out of blindness vision calm and strong.

We, mortal men, are the authentic word
He whispered to the dust, and the dust heard;
We are the habitation of His dream,
Of all His mysteries we are the theme.

Tho we His creatures dig deep in the earth,
Or fly on high where new worlds have their birth,
Deeper than hell, higher than all the stars
His mind invites our daring and our scars.

So, with the turning of a little dust—
Symbol of His majestic dream and trust—
We dedicate our faith in what He wrought:
Man quickened and immortal by God's thought.

And this mild omen from the springing year
Shall bud and blossom, and with fruitage cheer
The city of our high desire to feed
The growing hunger of her children's need.

PRIVILEGE AND OBLIGATION*

Rush Rhees

President, University of Rochester

What is the world's need? Unfortunately the world does not need that anybody should teach people to reach for all they can get. It is a fundamental instinct of undeveloped human nature. You may add to that instinct all the increased power of mind, all the superior technical training you desire, and you do not have the civilized man. You may have a very highly intelligent engine, and that highly intelligent engine may contribute to the domination of jungle law in the world's life, as the experiences of the dreadful days of the late war have made it so apparent. What is the world's need? It is service. And that is essentially a matter of spiritual ideals. You young men and young women are at the age when there opens before your eyes, before your own hearts, some vision of something that appeals to you as altogether good. You do not see that vision when you are thinking in terms of what you can get. You only see a vision when you think of something that is bigger than you are, to which you would like to give your lives, dedicate yourselves, in order that you may be a part of a great thing that may be brought to pass. Those spiritual ideals, those visions of youth, are not weighed in the balance or counted or estimated in price of gold or silver. The only way that you may measure them is in life. And it is as you prospective physicians, lawyers, dentists, pharmacists, teachers, what-not, realize that the thing that you do day by day is a service of your kind, that you justify that which is put into the institution in which you get your training. The privilege you enjoy is the mark of the faith of large-hearted and large-handed citizens in the youth of the land, faith in their readiness to respond to the world's need for service, in order that spiritual ideals may be realized.

Now, there is one thing that is very important in connection with this desire to serve. Youth's visions are always thrilling. Youth's notion of the way in which to make them real is often superficial and shortsighted. In your studies you may learn a great deal about the means to make visions real. You students of medicine will learn a great deal that you do not at the beginning dream of, of the long, hard ways, not only for the cure of disease, but for the prevention

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**Address at the Convocation of September* 20, 1920.

of it, and the improvement of the public health. If you are so intent upon the means that you forget the goal, your vision is lost. If you are so intent upon the goal that you ignore the means, you are likely to wander into desert ways. It is as you have your vision clarified by earnest consideration of the ways to realize them, that you will be made content to serve in a world that needs service.

You are coming to the beginning of a new year of study, the beginning of a new year of special privileges. My word and the only word I can leave with you, is: Recognize the obligation that you incur and see to it that in all your thought about your life, you recognize that you have a debt to pay that can be paid only by serving your community in a high-minded, large-hearted way. So you may make your community highly civilized, so you may justify the expenditure that has been made to enable you to get this opportunity.

Your chairman has told you that citizens of your city realize that the University of Buffalo has needs that have not been yet met. That is true of every educational institution in this country, and in some ways it is peculiarly true of the University of Buffalo. Possibly I may be permitted to say as a neighbor, that beyond most institutions this institution has permitted its faithful, earnest, devoted teachers to have the rather disheartening experience that befell the children of Israel in Egypt when they were asked to make bricks without straw. Teachers need to live, and teachers in this present scientific age need facilities that are excessively costly. You have recognized this in Buffalo in many ways within the last fifteen or twenty years, and facilities have been furnished here for your education in medicine and dentistry and pharmacy far superior to those that existed fifteen or twenty years ago, and these have been furnished by the generosity and self-sacrifice of the few who realized that the teachers needed these things if you are to have the privilege of being made ready to serve your community and your nation.

But Buffalo has only begun to make provision for the higher education which its youth should have, and your citizens are courageously facing that fact and saying to themselves, "We must furnish a large endowment for these schools in the University of Buffalo, in order that we may be in a position to say to the youth of our city 'Here we can give you the privilege which will place you under obligation to be worthy citizens.'"

Let me remind you who have been students of American history and civics, of something you may not have had emphasized in your

study of American history, but which should have been: that is, that from the earliest days the free school was established for the youth of the growing community, *for the sake of the community,* in order that there might be an educated citizenship.

Let me leave upon your hearts and conscience this afternoon this thought,—that the schools which you have enjoyed hitherto, and in which you now study, exist for the community, and that in taking the privilege that you have there you have come under obligation to the community that you may become stronger citizens and your city a stronger city. Because an educational institution, particularly an institution devoted to the higher lines of education, deals with the ideals of life, and more or less consciously, more or less definitely, seeks to awaken those ideals in youth and get clear response to them. Such institutions count most for the finer life of a city.

Your chairman has said—and I must beg him to permit me to demur to what he has said—that I am particularly competent to speak concerning the inflence of the University of Rochester upon the city of Rochester. You should have asked some citizen of Rochester not connected with the University to tell you that story. I know very many different and helpful reactions of the city upon the institution. I can tell you what advantages the institution gets from the city and from its citizens. I believe and hope that the city is better for our being there, and every man of us is determined by all that is in him to make the city a better city because we are there, and I believe that the hope is justified. I do not have any hesitancy in coming to Buffalo and in saying that Buffalo cannot fail to receive priceless advantage, if it will cherish within its citizenship a group of scholars, such as constitute the teachers in a University, who give superior ability to the great task of training Buffalo's youth for lives of service. It will be impossible for the currents of Buffalo's life to be insensible of the influence which goes out from such an institution. The influence will be immediate and direct upon the students. It will be indirect but very real upon the city as a whole.

I do know this, that there must be many, many youths in Buffalo who, for economic or other reasons, would find it difficult to follow their education beyond the high school, if the opportunity did not exist at their door, who, following if you please the line of least resistance when the high school years are done, will walk up to the doors of your colleges and special schools and seek to continue their training, and by that fact will become more profitable servants of their kind for their city.

In a certain sense it may justly be said that no city of the size of Buffalo can justify itself in not maintaining for itself such influences of the higher intellectual and social life. It would be a most unhappy city in which no churches were found. We say this with absolute conviction, though with great varieties of particular dogmatic faith; were it not for the ministry of things unseen, the pressure of things seen would be intolerable.

It will be a very happy day for Buffalo, when, having realized this good thing which your citizens contemplate for the University of Buffalo, she then begins to see rising in her centers a college of larger dimensions and fuller and ampler provisions, and special schools, more perfectly equipped for the work of training youth to serve; for then Buffalo will realize that she has done for her spiritual life the thing that she cannot wisely neglect to do. For what shall it profit a city if it shall gain all that the world has to offer in the way of commercial prosperity, and shall wake up some day to the fact that it was losing its own soul? But by means of higher education, the soul of the city can be cultivated. And realize, fellow-citizens, that that soul cannot be cultivated in the mass; it is as you make it possible for individual youth to become stronger men and women with larger vision and fuller power, that you preserve your city's soul.

I do not know whether it is wise or suitable for me to say what I have next to speak upon. I have been told of the great things that you propose to do. I hope it will not be discouraging if I tell you, with the intensity of conviction of twenty years of service in this field, that when you have got all you are now asking for, you have only made a beginning. This University, to be worthy of Buffalo, is going to appeal to the generosity of your citizens throughout the years, and will continually need all that you can give it. The sum which seems to you fabulous or princely will only begin to make this institution serve your youth and enable them to serve your city as citizens ought to desire it to be served.

This is a great undertaking, in which I congratulate not only the University of Buffalo, but the citizens of Buffalo. Your response to the appeal will be your co-operation with your committee's service, and in the end you will find that the University of Buffalo has friends it never dreamed of, friends whose names you do not now suspect, whose generosity will not be measured by the gifts that are reported, but will continue their interest through the years, to be shown in various ways in the work of these various schools; and probably, as the years go by, in continued and mounting gifts to enable your university to express the soul of your city.

Because I represent a university which is preeminently a college of liberal arts, I hope I may be permitted also to say a word of special interest in that particular phase of your new enterprise in Buffalo.

I hope those of you who are especially interested in what you call practical education will not look upon the college as an intruder in your group of practical schools. What you need today is to recognize it for what it really is—the cornerstone of your practical schools. It will do great things for the University of Buffalo; as it grows and develops into what it must be, it will prepare students for technical pursuits more perfectly than they otherwise could be prepared. When I first came to Rochester, there was a student with us who was taking certain special studies with a view to preparing himself to go on to study engineering at Sibley College at Cornell. Dr. Thurston was at that time the director of Sibley College. I wrote to Dr. Thurston for an answer to a question this young man had put to me that I could not answer, as to whether he would wisely do this or that thing in preparation for his engineering studies. Dr. Thurston, whom I did not know personally, replied to me, giving specific answer to the question, and then he added: "But why does the young man take a special course with you? Why doesn't he stay with you and get his college degree and come to us an educated man? If he does, in five years he will appreciate the wisdom of what I say, and in ten years, if he remains in his profession, he will have his reward."

The time is far too late for me to talk to you, even if it would not be an impertinence for me to assume that you need that I should, concerning the significance of what we call a liberal education in the training for life.

I ask you to consider just three things: *Firstly, the importance of a mind accustomed to work in different lines than those that are immediately concerned with the man's own business.* Sometimes a man has to get into situations that are not familiar. We had an interesting comment made concerning some of our students who had been studying chemistry, who went to Niagara Falls. They had studied just chemistry, not industrial chemistry or technical chemistry at all. When the president of the company that they served was in Rochester the professor of chemistry asked him how these boys were getting on? He said, "I notice one thing about your Rochester men, they are not phased by a new problem,"—which means they know how to use their minds, and they do not lose their heads in danger. It was simply that they had seen enough of different kinds of intellectual activity to be at home in unexpected conditions.

Secondly, the practical value of some knowledge of the world of thought and of fact beyond the things that are necessary for the actual conduct of a profession.

And thirdly, the enrichment of the man's own life. A man of very large means, who has no children, said to me sometime ago: "If I had a boy and he wouldn't go to college, it would break my heart." He is not a college man. I began to tell him of the reasons why a college-trained man may have advantage over others in the race of business life. "Oh," he said, "I am not thinking about that at all. I am thinking about what he would do with himself after he got his pile."

A boy who was walking to the college one day kept step with me as I was going to my office. I asked him what he was doing, and he said he was studying Greek. I said, "What are you reading?" He answered, "Plato." I talked with him about it, and then said, "I congratulate you on studying Greek. What are you going to do?" He said, "Why, I suppose I am going into business. My father and my brother have never been to college and they think I am a fool, but I like it."

Suppose that boy goes out into business and doesn't make a real success; but he goes home at the end of his day's work, and he sits down after his supper, puts on his slippers, takes down a book, and spends the evening with a great soul; hasn't he got something that is worth while? He may not be a typical college man, but there are enough of them who get that emancipation of spirit which makes them superior and constitutes the training that does not aim immediately at a calling, but does constitute something very worth while for a city. I am not talking about the good of the boy now. I am talking about the good of the town in which the boy is going to live; for that boy probably will cherish his visions and seek to bring them to pass. There is a very ancient wisdom which declares that where there is no vision, the people perish.

I am going to ask the privilege of saying a word to you students, those who have been in their college work in their various departments for two or three years, and those who are going for the first time into the classes of these various schools. I wish particularly that you young men and women should realize that you are beneficiaries, that you are receiving very special privilege.

Occasionally you run across a young man who has the attitude that he is conferring something of benefit upon an institution by attending it. Occasionally I get a letter from a youth looking towards college experience, and the letter runs something like this: "The University of A has offered me so much; B College indicates that I will get something else; C College has made things very attractive to me. What have you got to offer?"

Why do I mention such a letter? Simply to emphasize the fact that there are young men—they are not all of one class—who have a notion that colleges are out to sell themselves to the young people, and that the thing that is necessary for a young person to do is to sit tight and see what is the best bargain he can make. Sometimes the young person is an athlete with great ambitions. Sometimes misguided friends of institutions do something to justify the belief of young men that a good thing to do is to sit quietly by and let the other people do it. Sometimes it is simply a student with a more or less economic pressure who thinks he might as well wait and let the institution put up the best bid it can. I want you to realize, every one of you young people coming into this institution, that far from conferring a benefit upon the institution, you are receiving very marked privilege by coming here.

A friend of mine, very well-to-do, sent his boy to one of the very prominent colleges; and after he had entered the boy and made all the arrangements, he received the regular term bill for his son. He wrote back saying, "I do not want that. I want you to render me a bill for what it costs you to educate my son." The reply came back, "We cannot render you any other bill. That is our regular rate." He answered, "I know perfectly well that is your regular rate, but I know as well as you do that it doesn't represent what it costs. I want to pay what it costs." At the office of the college they had to sit down and do a little figuring and try to make out exactly what the per capita cost of students in that institution was; and of course it very greatly exceeded the amount of the bill that had been rendered at the established rates of tuition. After having figured it out, they sent the bill to the young man's father, and he with a great deal of satisfaction paid it.

What was the significance of that? It happened that that man knew that a college represents the public-spirited sacrifice of a large number of people who have made gifts of money, of time, of service, in order to make possible the opportunity which the college opens before the young man or young woman. You come here to the

University of Buffalo to study medicine or dentistry or pharmacy or law or liberal arts, whatever it may be; you are required to pay a certain tuition, which you pay. But you do not pay what it costs. Do you imagine that your tuition pays for the building in which you are taught? Do you imagine that your tuition pays really for the instruction that is given to you? There is no institution of learning of real standard today in which the fees charged to the students begin to meet the cost of that which is given to the students. And I emphasize this merely that you may realize that in coming into this institution you are receiving a privilege. But I do not want you to think of that privilege primarily as a financial one—that you are coming to something that somebody else has paid for. It is important that you realize what this privilege is. You have the privilege of the training of your minds in order that when you are through you may go out into the community and use those minds more effectively in whatever line you choose to do your work in the world.

You have here the opportunity of growth, for you get more than the training of your mind. If you improve the opportunities that are furnished, you learn a great many things you do not have to use immediately. Particularly is that true of one of your newest branches of learning, of the College of Arts and Sciences; and that growth, opening your eyes to the world in which you are to be citizens, making you acquainted with things that your own particular calling might leave you ignorant of, is a privilege the value of which will be increasingly recognized by you as years pass over your head.

And then you get the benefit of fellowship. You will make friends here. I suppose for a good many college men and women, after the years are gone, the result that remains most manifestly of value to them is the friendships that they have established, the friendship with fellow students, and the rarer friendships with teachers; for you are at the age when you will find yourselves associated with other men from other places, having like interests of mind and heart, and those fellowships will be of priceless value.

I do not underestimate the importance of the particular technical training which you will receive. That is so obvious that I prefer now to ask you to recognize the privilege which you enjoy, and ask yourselves the question: Why is it offered me? If you answer that question rightly, it may be a revolutionary influence in your lives. A great many young people who do not stop to consider, think that the object of going to a college is to make it possible for them to get

something better than they otherwise would get out of the world and out of life.

Now it is true that in America we have been profoundly interested in the individual, in making the individual fit for the best life he can live; and sometimes in recent years we have harped on that a great deal, until possibly we are responsible to some extent for the notion that is taking possession of the minds of the youth, that really the world owes them the opportunity to get all they can get. And you know that in these recent months there has been a sort of epidemic of "getting," as it runs in the popular phrase, "getting while the getting is good;" and men have taken an attitude toward life that faces in the wrong direction, because they have not stopped to realize that they really are the heirs of privilege, and that privilege is given to them, not because it is of supreme importance that they should get all they can get of knowledge or of money or of pleasure, but in order that they may get ready to serve.

Why is it proper that fortunes should be expended in medical education? In order that medical students may be able to pile up better incomes? Not a great many of them do it. The reason why philanthropic men give money for such purposes is because they believe that they can so better train men to serve the community. Service really rendered brings its reward. Always it brings its reward in satisfaction. Very often it brings its reward in material terms. It is not a comfortable consideration sometimes, but there is a large truth in it, that in the long run a man generally gets what he earns. Outside of such professions as the ministry, and teaching, a man generally gets about what he earns. The world reads him about at his right value.

Service is the great object of education. Service is the great need of our civilization. The most revolutionary thing that has come in my observation over business is the discovery by a great many leaders in business that the largest satisfaction that they can get out of their business enterprise is the contribution that they make to the world's good, rather than the profit that they count at the end of the year. That may sound a little academic. I assure you that it is by no means an unknown condition. And the more that can be the characteristic of the citizenship of our country, the more sure our civilization is of its permanency, and the more certain is the contribution which we as a people may make to the civilization of the world.

Sleap & all at once we were
Call'd up in a great hurre to go
on Bord the Commodore w^th
Boats from three Ships a Call
ing the Soldiers on Bord the
Ships the wind Blowing the
Seas pomeing the Boats Beat
ing togeather all in Confusi
on But we all got a Bord By
Day Bj sett at the Sun Rise
we were ordered to go on Bord
other Ships ours went on Bord
the Duke of yorke there was
a Bout 300 hundred went on
Bord the Commadore that Nite
with us Dispersd in other Ships
this 26 Day of july that there
of our Ships & frig that met
us the Day before which was
ye 25th Day this frigget came
out from ye Havanna
they Returned for the Relea^se
of our men

That we left on ye Islands
& we stood our Course to the
Havanna & we stood our
Course ye 27 Day we were in
form'd that there was a numbe
of men of war (W^ch) ye sail
Lay in waitfor us But we
Sail'd By them att Nite &
ye the 29th Day we
Came in Site of the famous
a Peareence of Shiping
that Lay att an Cor a Dirty
menny miles off Ders for
makeing Ready to go a Shore
thy morning as fast as possible
& j happend to Be Clerk of the
gard this Day on Bord of the
Ship an we expected to
Reieve orders for to go a shore
Jeff as we Came up to the
Shiping But the Commodore
gave orders to follow

A JOURNAL OF THE EXPEDITION AGAINST CUBA

FOREWORD

BY JULIAN PARK, PH. D.

Professor of History

The episode of the colonial expedition of 1762 against Havana is one in which Connecticut men and women may take especial pride, for the picturesque and pathetic enterprise, as far as the colonies were concerned, seems to have originated in Hartford. During those years of suffering and privation ending with the capture of Havana, sons of several colonies had found their graves in many parts of the continent and had been laid to rest beneath the waters of West Indian seas; but no colony in proportion to its population had furnished so many men as Connecticut.

Among those enrolled in the provincial militia was Roswell Park, who was born at Preston in 1726. He married Deborah Avery at Groton in 1753, and it is to her care that is due the preservation of the graphic, though hardly important journal which follows. He seems to have taken no part in the war of the colonies against France in the New World and no doubt this journal would have continued to be but a homely record of petty commercial transactions had it not been for Spain's participation in the hostilities.

A new king, Charles III, had just begun at Madrid what proved an exceedingly noteworthy and enlightened reign. He had married a sister-in-law of the Dauphin, which, joined with the astute diplomacy of Choiseul, made easy the signing of the famous Family Compact, the wily Frenchman hoping by diplomacy and arms to form a union of all the Bourbon powers which should be capable of holding its own against England, a hope the more plausible since Austria and Naples—of which Charles' son was king—already formed part of the league. Charles engaged to declare war on England on May 1, 1762. But the union, whatever might have been its potential results, came too late.—France was exhausted and Spain unprepared; to the one the alliance brought fresh disasters, to the other serious losses.

Not the least important of Spain's losses was that of Havana—

even though, unlike Gibraltar, the loss was but temporary. England lost no time in striking at Spain in the different quarters where she was accessible and vulnerable. Without waiting for Charles' declaration of war, England opened hostilities in American territory by despatching a fleet against Martinique, which fell in February. A stronger squadron, commanded by Admiral Pocock, consisting of thirty-seven warships with nearly 150 transports, sailed from Portsmouth, England, and appeared before Havana in June, being joined by the first fleet. The two together made up a formidable array for an over-seas expedition, the land force, under Lord Albemarle, consisting of 15,000.

For two months and a half the siege lasted. Histories of Connecticut* describe the stubborn gallantry with which the fortress, strong by nature as well as by construction, was defended. But more effective than Spanish ramparts was the climate. It was, of course, the worst time that could have been selected for such a tropical enterprise. There was no rain, no relief from the burning heat; the want of water was heartrending. Before the middle of July the army was reduced to nearly one-half of its original number. When almost at the point of utter despondency the arrival of the colonial contingent turned the inevitable defeat into triumph.

The body of provincials was made up of 500 men from New Jersey, 800 from New York, and 1000 from Connecticut, all under the command of Major General Lyman of the Connecticut militia. The immediate command of General Lyman's regiment of "preventials" (as the diarist calls them) devolved upon Colonel Putnam. Shortly after their arrival Havana surrendered, the Spanish loss including much shipping in the harbor and fifteen of their best warships.

The New Englanders' losses were considerable, probably more in proportion than were the regulars'. By the end of the campaign 2,754 soldiers of the combined army had died.**

Of the tedious voyage from New London and some of the details of the siege the journal tells in its simple untutored way—a contemporary recital of an event not very important as history views wars and sieges; but it is barely possible that it deserves resurrection for that very reason. Some things worth the emphasizing it does indirectly bring to mind, and among them is the loyalty to the mother country which impelled those Connecticut farmers so shortly before the Revolution to undergo such privations thousands of miles from all that

*Trumbull, II. p. 443; Hollister, II. p. 116.
**Sargent, Campaign of Santiago de Cuba, I, p. 40.

concerned them nearly; it brings to our minds the far-reaching character of the Seven Years' War, which we are apt to regard as merely a struggle for Canada or, more properly, the final outcome of the Silesian wars—revealing Prussia predatory and unscrupulous, then as now; and lastly, it is so vivid, so human that we would not change its unlettered style for fear of conventionalizing it and so destroying its truth to life—in a word, its significance to us of 150 years later; and especially would we not change the quaintness of the addition made by the widow who so quickly found consolation in her bereavement.

A JOURNAL OF THE EXPEDITION AGAINST CUBA*

The following is the journal of Roswell Park of Preston, in the 2 year of the Reign of our Sovering Lord King Georg the 3, King, Defender of the Christion faith, etc., who has many powerfull nations to ingage as it ware on every side And he wonderfully subduse them so we hope He will Be a terror to the nations and brake their bonds till he totally subdeues them in final conquest that Peace may be in habbitation.

Roswell Park
Steven Downer
Louis Jones
Samuel Avery
Semeon Jones
Silas Starr
Zepheniah Littel
Ephream Parke

Wensday, May ye 19th A D 1762.

Then I Roswell Park went to Norwich Landing and assisted in makeing ready for the campaign. Brought down a large Quanity of Blankits, put them on Bord the sconer Speedwell & Returned home at Evening and the next day went down to Groton and taried at father Avery's & the Next day went on Bord at Gails farry, which was May ye 21 1762 & in the second year of the Reign of our Sovering Lord King George the Third. Then I Roswell Park of Preston went on Bord at New London with Major Durgay a noble Scuner to go to New York to joyn Collonal Lyman Rigment as a Sargent under the Command of Capt King Suffield and Lft Moses Park of Preston & Inside L. Cardon Mack & May ye 22th we saild aLongsid of Long Ilan & May ye 23 was the Sabbeth and we stood our corse with a dull wind till iegt at evening. & a voilent Thundder storm which mad the old sconer trembel.

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*Practically the only changes from the original manuscript have been to punctuate it to some extent, and to divide it into sentences and paragraphs. Italics indicate illegible words.

We dropt ancor & stid all night & the Next day we went threw hell gate & abought 3 of the Clock we dropt ancor at New York & tuseday was ye 25th day of may and we hoisted Sail and went over to an ilan where was about 2000 men, preaded day by day then & was mustered & at Evening Returnd on Bord the Sconer Speedwell and then went out of hur into one of his maiestyees Ships and Recd our *coto* (quota) of pails and vittels & hatchet and ye 26th day we went on the ilan and Recd the kings arms and trained and at evening went on bord ye Ship and ye 27th we went on the ilan and trained and their I saw 15 or 16 garded to be whipt, about a thousand stripes each one. One I saw led away as tho he was dead & the Edgetent wd flog him out of such fainting tricks & ye gunners laid on and they cried as tho he was ded and whether he was or no I cant tel, and the 28th went on the ilan, traind, and at Evening Returnd and Recd our beds and took our lodging abord the kings Ship, and ye 29th we went on the ilan and traind and at evening returned on Bord on the ship. Saturday went on the ilan and traind and at evening Returnd on Bord the ship & the 31th we went on the ilan and traind and at evening Returned on bord.

Then we went on Shore and traind and joyned the regiment & was drawn up & five Platoons By Companyes to the writ and Left, at Stargates marchd off, formd Companyes & Returned on Bord the Ship & ye 2 day we went on shore and traind and I was apointed Sargt of the ..... Quarter Gard of the Proventials of our Rigment that was set on that, and on that Island *Cold Pradilon* which was on the 2 day of June A D 1762 and the 3 day of June we hoisted Sail and went to Sandy Hook aBought 18 or 20 miles By water, & the 4th day we Boare away gainst Elezabethtown in the Jarseys & Dropt ancor their, & ther we lay at ancor with ye transports and men of war, & their we Lay from the forth to the Ninth Day of June which is Wenesday, which day Completes three weeks seence we Came from home; and Thursday, June ye 10th A D 1762 the man of war gave a signal for sailling and fird off their Cannon, hoisted Sail and Bore away Round the Point; had got about Eight or ten miles and the man of war, viz. the Comadores 60-gun Ship, fired & we loked tord hur and she was stuck fast aground. The hole fleet Consisting of Eighteen Sail down with their Sails & dropt ancor and it was feared the man of war wold Not git of. They hove out their water and littend ther Ship and so got of, & their Lay at ancor till the 11th Day of June about 2 of the Clock, & then the man of war fird a Cannon for a signal for sailing & all cam instantly to Sail But where bound we new not.

June ye 12th we steard S.S.E. 40 and 12th day, the 13th course

steered 46 Degrees East and the 13th day, the day 39 and 58 Lattd and Monday the 14th the same course by E.E.N. in 39-25. At 4 P.M. wind hauld S.W. Hauld our wind and Stood S.E. at aboute 3-½ P.M. June the 15 day A D 1762 at 12 aClock ye wind hauld to the west, steered S by E. At 4 P.M. the man of war boar away and brought tew a sloop which mad us Lay too about two houres, then stood on oure Course, weather Blowing. 16th at 5 A M wind haled to ye South and obligd to baire away & stand S.E.S. obs. 37:53.

17th ye Same Course By observation 37:25. 18th the same course, Lattd. 37:2, getting to the gulf Stream at 12. At Nite came on a hard gale of wind at W.N.W., lasted about an oure, after that calm, a large Swell. 19th at 4 P.M. the wind breazd up at N.N.E. stood 20th, wind at E. course, by observation in 34:19. 21st by observation 33:9. 22 in the morning a calm. At 10 of the Clock ye wind Brezd at S. by W., stood E. by S. By observation in 32:44. 23rd by observation in 32:28. 24th wind W., course S.E. 31:32.

I have enterd my journal in another form over the Leaf of the other side of it in a Tabel as to distance of miles run By courses and the latitude from day to day. I observe that from ye day we left site of Land as we said from Sandy Hook Before we Came in Site of Land again was 36 days even from ye 9th day of June, which was Wenesday, untill ye 16 of July, on our passage.

I think we saw fifty Sail of vessels Before we Came in site of Land which our men of war spoke with & when we came in site of Hispanole we espid a large Ship making down towds us and the 40-gun Ship boar away toards her and she Lay to for a while and then run, & when our man of war saw that she Lay to for a time and ye other Ship again and we all Lay too & waitted for her, then our 40-gun Ship turnd her Corse and stod after us and we all Stood our Course again, ye Ship folloed us a while and Left us.

July ye 4 1762. The forty gun Ship haild us By fireing at us. Our of(ficer) Begun to wonder what She ment By fire at us, for she shot very Rite at us—one under our Bow & very close and another by our Starn and another Ball seemd acoming Rite at us but struck the water and jest cleard the Stearn, made the offisers doodg and look Sharp. Our Captin stuck to hur & Bore up to hur. She spoke with our Captin and told Him he Had thre Shots to pay for. The capt ask for what.

He said not obaying orders. He told him he had obaid orders. He swore he Lyd. The capt told him he did not Nowe what he ment By firing cannon balls at him. I think he wrapt out sum great Oaths & told him he wold fire if he pleasd. Our Capt Collings Returnd smart words or oaths & told him he mit fir at him as much as he pleasd. The Capt Lady was very much fritetend, & it was said, Crid. However they fird no more at us. A Littel Before that sum days the Commodore fird us two cannon. We lowd Sail and bore up to hur. The Commodor ordered the Captin to Come on Bord & the commanding offiser may ..... There was hell to pay. They went on Bord the man of war and the Commodore demanded of the Capt 4£ 0s 0d Starling for Not obaying orders. But the Commodore sent for the mate of the Ship and Returnd the money Back again.

I observe the day we joynd the Ridgement on the ilan at New York called the Governor's Ilan, as we were amarching down to fire at the targats, there came a Bullet and struck the ground close by ye Edgetent jest where I stood. Another came close By me as I was awalking along on the Side of the ilan alone.

July ye 16th at Evening after we Left the man of (war) we supposed to be french or Spanish, ye 64-gun spoke with us, viz the Commodore, or by orders, & Chargd us to keep near him that Nite & Sent the 40-gun Ship Back amongst the Transports to charge them to keep Near together. It was sumthing suspected that their was a Number of men of war Near and that that Ship was a Spi. I speak before of ye same day of ye month of our comming in Site of Hispanole and ye 17th day of sd. month at evening ye Commadore haild us again and Chargd us to keep under hur Stabburd Bow for she Shold not Carry much Lite, gave us orders ..... when Col. Putnam was aBord and charge hur to keep well to his Stabberd Quarter and ordered the hool fleet to keep nig(h) together and the next day was the Sabbeth. We still saild S.W. that day by Hispanole under a fresh gale of wind. This Sabbeth was ye 18th day of July. It was the Land of Hispanole But was called Cape Nokkelo which was a greate Cape that run out in the otion. Our 40-gun Ship was ordered forword for to Look out. We saw her Returning and we Threw the glass discoverd thre Sails aHead. Our Commadore lay tu as they came up with the 40-gun Ship, Spoke with hur, and shiffted our Corse Northerly. About SunSet Stood of in order to Loose the innemy till sumtime in the nite and then stood about our former Corse South west untill morning.

We was out of Site of Land and ye 19th was Monday and aboute ye midel of ye day we discovered Ceuba, and came jest alongsid of

Land and aboute 10 of the Clock as we was a sleep Between Decks. All of a soddon there was a great holloing and jumping on the Deck & stamping. Capting Collings holloed to the Juno to kee(p) of(f), a strong gaile of wind and the sea fomeing, they hollowed they could not. The Captin of our jumpt and Holloed most Bitterly to his men to handel their Sails & keep off. With much adu we just Cleard them & a more terable sene then opend in our vew. A very heavy Ship coming very forseabelly, which was called the Masecorade, in which the *Reagger Loss* was aBord of. It being darke the ship seemd to Come Rite against us, which made the Capt of the Ship & mates & Sailors aPear much surprisd, and I think no wonder, for if she had a struck us, as was feard, no doubte we had a sunk quick, for she wold have stove our Ship all down. But by the good hand of Providence we jest escapte, by the good conduct of our sailers and the quickness of their action. We turnd off so quick that the ship Mascorade toock us in ye Bow of our ship and broke the top sail yeard off and another yard-arm off that was lashd aCrose ye bow of the Ship near a foot over our yard-arm, broke away their Ropes and Rattellinge and we supposd hurt them much more than it would us. This all happend I suppose between ten and twelve aClock at Nite and ye 20 in the morning borth the Juno and Mascorade was stuck fast aground jest on Hispanole. Our Commodore keep hur Corse till she came oute of sit of one of them and jest discovered the other. The man of war Came aboute & orderd 2 friggets to go for their Releaf. The 40-gun Ship went after them & we stood our Corse, got out of Site of all But the 40-gun Ship. Our Commodore turnd aboute, saild tord them & turnd Back and then turnd about again, stood down to them till Nite and then stood of to sea all that Nite with ye sea for their safete. Returned in ye morning back on a shore to se what was Become of the 2 Sail. The Ship Mascokade was not founderd but driveing ashor. They dropt ancor & the ship surgd over the ancor, henderd them so long that we thought she was aground. She got off but this very Nite was ye 2 Nite that Col. Putnam's men was on ye Ilan of Ceube.

Got ashore ye 20th day aBout midnite on Rafts as they cold. Ye 21st day is ye day compleats ye two nites. Ye Vessels sent for their releaf had not got any of ye men as I cold learn. Ye 21th 64-gun Ship orderd all ye troops aBord ye Ship falls to come Abord of him, sent boats; we hurried abord of him as fast as possabel. I was ye first Sergent orderd aboard with our men. Sum thout it Tearabel to go aBord ye Commadore But we found such good treatment that we wold Have Been very glad to have staed aBord ye Passage—good

Likker, Plenty godd Porke & Beaf, Butterd Peas, Plenty good Biskts, good flower for Pudings. They told me that they had had Plums Plenty till a few days. It was almost more Pleasant teu us then anything that Ever we Saw Before & youd think it no wonder if you new our liveing & I will informe you what it was we had delt out to us day after day: One bisket & a half a day (sometimes ye good Luck to get two), it was sd. we had 4 pounds of Poark waid out for six days. But I don't now what ye wait was, But I know that when ye meat was Boild I could put & devided I could Put all my alowance of meat for 2 days in my mouth at once & more if I had it, and nothing for Supper nor Breakfast without we savd sum of our aLowence. We had a bit Rice Boild for Sas with our meat But it was so must(y) it (was) aNoufe to poisen one to eat it, and the Biskets musty two.

The 28th we had a biskit & half and Rise for dinner and if a man cold make a dinner, supper and Breakfast out of a bisket and a half and a point of Rise, he mite, and if eat it all at once he must dew without Supper and breakfast, if he would be so extravigent as to eat a bisket and half and amoste a point of rice..... In aBout eight or ten days we drew amost a pound of Shugger for six men, devid & you can put it in a spoon amongst six men. Once in about 10 days we *cold sum* of ye Bottom of Sider .....cold vinnegar by..... devided wold make 2-thirds of a jell to a man for sd. term of time. This was our liveing—I mean ye Solders. Sum men sd. they should sterve to death; sum talked of jumping overBord, others wishd us to Be taken. I have given an aCount of our liveing Before we went aBord the Commadore where we recd kind treatment, good vittels and drink, the Lik we had Not Sean for a long time. But in the midst of our rejoisings, our offisers told us we must go directly aBoard the Ship an with Cpt King, which we was veary sorry to hear, but hurred of(f) derect, where we found Better liveing than we did aBord the ship falls. But a Purdigus *Roleinthing* ... crewel sleepings a nites allmost impossable By the Reason of Being flong this way and that.

July ye 22 day was the day we went on Bord ye Commadore. I before speak of the Reasson was our Ship was orderd Back for to tak Col. Putnam's men on Bord of hur. We, viz the fleet, stood of(f) at Nite & Returnd in the morning on ye 23 day of July to wait for ye ship falls. Ye wind blew hard, the sea run hie. We expected hur, viz the Ship falls, to com up that we mite stand direct to the Havanna and joyn the grand fleet, the metroppelus of Ceube, for many grew much impatient Being So Long on our passage, When we thought to a saild to Saint Augustin in abought 7 days & Now we have Bin on our

passage above 40 days but the Commodore orderd the Ship falls to stay and take in Col. Putnams men and what they could git out of ye 40-gun ship & Stand after us as sun as she could, & the Commodore & fleet consisting of sixteen sail stood for the Hivannaas as fast as possable, and ye very Next day, which was ye 24 day of July in the year 1762, jest as the day Broke there was a great outCry, the men of war fird near 20 guns all in confution, crying out we were aground our Ship an jest *Ruled* ye ground once more hur Length wold stuck her fast, but by the good hand of Providence we fetcht abought and dodgd the Bracrs and got out. But when we saw we were Clear, Behold a most mallancolly Prospect aPeard in our vew. Looking Back, we saw the 40-gun ship Stuck fast aground a great Distence from Land by a littel ilan & near ye ilan of Ceube where we ware all first ..... and stood about. We saw 4 more Ships aground. We apprehended they ware in great danger for the sea Beet hard against them as they were aground. We saw sum of theyr masts was Broken. We lay off and on till the Commodore orderd one of the Ships to stay for their Releaf. We saw their was a littel ilan jest By.

In these Ships there was Col Lyman & Lft Moses Park with other Cpts and offisers and Sergt Joseph Park and Siah John Meach & many of my Pecular frinds. I supposd if theyd come along any Sail of the inymy of force they mit put them to distress. We understood that they ware agiting aShore in their Bots So we Left them to the good hand of Providence & stood our Corse, & the very Nite following aBout midnite our Cpt aBoard the ship, on being aprisd of Be in danger sounded and found scarce 3 faddom of warter, fird a gun and Bore aboute as Quick as possable & the Commodor fird 2 guns and Stood Back with the fleet. As we turnd we fell Betwen 2 ships tew our great surprise. Our Cpt Behavd very well, orderd Booth Ships on either sid, but to our great surprise the great Cathead Ship Bore fircely up tew us in such a wind if she had struck us on oure side, as for a time seamd to apear no great screupel, we had Quick a sunk in the Sea, it Being aboute midnite, great distence from Land, altho we ware on the old Banks of the Behaema Ilans. But by divine goodness we scapt and the morning folloing was ye 25th day of July.

On the Sabbeth we saild on oure way peasabelly and went to Bead at Evening and jest got to Sleap and all at once we ware cald up in a great hurre to go on Bord the Commodore. Ye boats from thre ships a caring the Solders on Bord the sip, the wind blowing, the seas fomeing, the Boats beating togeather, all in confution. But we all got abord by day and jest as the Sun rise, we ware orderd to go on Bord

other ships—ours went on Board the Deuke of Yorke; there was about 3 hundred went on Bord the Commadore that Nite with us, Dispersd in other Ships this 26 day of July that thre of our Ships and frig(ate) that met us the day before, which was ye 25th day this frigget Came out from ye Hivanna, they Returnd for the releaf of our men that we left on the iland & we stood our Course to the Hevanna & we stood our corse.

Ye 27 day we ware informd that there was a number of men of war, viz seven sail, Lay in wait for us, but we saild by them that Nite & ye 28th day we came in Site of the famos apearance of Shiping that Lay at ancor a Prity meny miles. Orders for makeing Ready to go aShore this morning as past as possabel, and I happend to be sergt of the gard this day on Bord ye Ship, and we expected to receive orders for to go ashore jest as we Came up to the Shiping, but the Commodore gave orders to follo hur and she saild by the first Party of Shiping and Saild by grand Battery, came in open vew of the harbor and town, saw the fiering from ye grand Battery, our incampments and the town, past by all ye Shiping, lay till next day morning and July 29th A.D. 1762 we ware all orderd aShore and we marchd aBout a mile & a half upon the ilan and their was halted and was orderd to Pitch our tents. I sisted aBout ye Pitching the tents but Capt. Kings tents did not Com By Reson of his being orderd out of his Ship on Bord the Deuke of York. But the offisers told me that it was agreed upon that ye tents should be devided But the men that belong to the compinyes was so ingagd for their tents, Capt King sd he would not.....for them & so we lay this Nite on the ground. I was orderly Sergt of Capt. Kings Company the first weak we landed. After.....I walked over the hill a way to see the fiteing and their was a very grand affaire to be seen—the sitty of Hivanna with all ye fine Bilddings, Churches, Nunnerys, the grand Battery, the Governer's fort in town, the many batterys round the famos place for to bate ye Bull for devertion, which was a great pound to confine a mad Bull in & then set a bull dodg at him. Their was the finest Land to look tew I ever saw. Cokanut trees, ye Cabbedg tre, the canarys, the grapes, the Cattel, the ass, the mule—all this & the Spanyerds Plenty and ye grand fireing all opend to my vew jest at one Site. I returnd. A party of our men was orderd for a peacket gard—Capt Staunton and two suboltorns & two Sergt & bout 80 men. A grand fireing was made all that Nite from the batterys and by Cannonadeing and Small arms.

We campt at ye Havanna ye 30th of July 1762. It is Brigade Burten's orders that the Preventials mount a subboltorn gard emediately

who are to be posted at ye Littel Redout & Capt Russel is aPointed to act as a bridg major to the preventials, is to be obaid as such by order of Lieut. Col. Hargill, ye Camp to be Removd this day and nessery changes to be maid in the Ridgment of the incampment.

July ye 29th, 1762 field offiser Col. Burton, the first & 2 Battelian of grannadears, Light infentre and mareans are to Receive 4 days Provission, to movve their Battallion at 4 of ye Clock in the mornning ye 2nd; at six the Lite infentre; at seven the mereenes, as Brigadear Burten informs that the Putting off of the men's close is very *prejudicial* to there health as they alow of nite dew. It is strictly Repremanded to the men on dewty Not to take off their Close on any aCount But on the contary better than .....& take all Possabel Preservation to Prevent their Sickness from it, the troops this day disimbarct are to Be very Carefull how they eat vigatibles or Roots they may find, untill they are thoroly informd their Quallyty.

The day we toock the Grand Castel, our men were Preaded, all orderd to charg to ingage the inimy. It was said they ware about coming upon us out of the town but Behold they did not.

July ye 30th A D 1762 I took Charg as an orderly Sergt. July ye 31th day and this very day their was a very grand explosion in oure faver, the Grand Castel of ye town was taken by the Inglish, our men undermined the castel on one side where was upwards one thousand of our inimy. At the Blowing up one corner opend a way for our men to go in and they hist Inglish collors, struck down the Spanyards collers; the Spanyards up with collers and poold down ye Inglish's. In a minnit or two the Inglish Puld down the Spannish Cullers. The Spanyards jumpt over the Sid of the castel much as sheep jump over a Wall & the Inglish afired upon them all ye time. It (is) Creadably Reported their was upwards of 500 hundred cild out write & the same number taken Prisners.

July ye 31th, we ware this day amakeing ready (to) draw our Provistion. This 31st day was the Sabbeth and the Saterday evening I was sent out on the .....to draw Canon. Returnd in the Evening or aboute midnight. The sergt mayger told me I muste prade the men at thre aClock this Satterdday nite, which I did, and Sabbeth day nite I was on the Quarter gard. And August ye 1th day A.D 1762 I servd as orderly.

August ye 2th A D 1762, August ye 3th I served as orderly and as a Clarck to make the provistion Returne, & went & toock the care of the provistion for the men, saw it tewe the Camp and devided it to the men. August the 4th I was orderd out on the advance gard with the

Yorkers under the Command of Left *Williams,* went and toock Post at an old hous where we were ny Nabors to the Spanyards. In about half of their Castel jest By they were abilding a Strong battery all in faire vew. The Left told me to take 6 men & go & see what they ware about, said don't be tew ventersume. I spoake to the (men) to follo me. They turned out with sume backwerdness as I thought. We marcht threw the fields where they so us acoming tords them, then we went in to the wods, up a hill, where we came in open vew of the castel—all jest in gun Shot, where we saw them at work. The men went over the hill to the write & I was on the other side. I heard a gun go off and supposd they fire at me. Ye men came over the hill, ask if they shot at me. I told them I did not no, but they did. We loock round us as we stood still and discoverd about hallf a dozen of them jest belo us, and we cropt up. Theay squat behind the weads and Bushes, we did not, but there ware behind the Bushes a greater number. There was about 30 or 40 at our Left hand. I thought they mite flank us in the Bush as they mite if they had a hurried. We marcht tord them awhile and then we came in the bushes, fetcht got a burden of coconuts & Returnd to oure gard. The Left told me he understood had heard that a very great number of Spanyards were acomeing down upon us. He told me if we stood them one fire out of doors we must Repaire to the house. Ses he, you must take one third of the men in one Ruom & the Corprels another & he wold take another third in the middell Ruom & to fite threw Portholes. We heard the number of them that are acoming was 1500. We loock out that day and that Nite folloing carefully, but no inimy came upon us, and in the eve ware releived, Returnd in camp.

August ye 5th, 1762, I returnd in from the advanced gard, got a littel sleep. August the 6th, 1762, servd as orderly. August ye 7th, 1762, I was orderd out on the *frigate* to git batch of beans; ye 8 I was in Camp without dewty, Being not well. Monday, August ye 9th, 1762, I was orderd out on the *feteag* Party to git beans. Abut the middel of ye day there was a fiering at the River. We thet was of the preventials that Bore arms, aBout fourteen Sargants and corporls, was orderd to presue the innimy, which was said to be Spanish indians, But we cold not find them so we Returnd. August ye 10, I was orderd on the *feteag* for giting *sack of* beans. Our men we Left that was cast away, come to our incampment this day to our great rejoycing. August ye 11th we had a new Battery opend and a grand fireing and very hot weather. This day we pitcht our tents, set our Camp Collors, our seedge lookt . . . . altho our innimyes fortification looct invinsable.

August ye 12th A. D. 1762: This day we Had Seaveral New Batterys opend from which there was a grand fiering untill two of ye Clock and we silencd the innymy. Flags of treuce pasd this 12th day. I servd as orderly sergt, our sergt being sick who servd. August ye 13th, 1762. This day I served as orderly sergt & it was said that five of the Clock cappitlation was agread upon and that August ye 14th our men was to march in the sitty. August ye 14th: this day our men had Liverty to wash and Clean. This 14th of August was the 17th day of our hard feteag after we Landed and I was obligd to serve as orderly, our Sergt beng scik. August 15th A D 1762; this day I was orderd to serve the deuty of an orderly sergt for Genl Lyman, and ye 16 day about 12 Clock I was Releived.

Hear endeth the Jurnal of Roswell Park. The Jurnal ends July (August) the 16th and according to the account that Lft Moses Park *Junr.* gave of him, he was taken Sick about the time that the Jurnal ended, and the time of his Sickness was upward of six weeks, for Lieut. Park journal saith that he died the 29th day of September, 1762, and was burid at the Havannah where they maid a buring place to bury those who died ther.

Deborah Park, 1762. The campaign being over and the Soulders returning home the last of November and brought news that my husband was Dead and many other frinds, whch was heavy news indeed to me and to all his and my friends, and indeed my troubel was very grate. I thout I could say to all that goaeth by: behold and see if there be any sorrow like my sorrow, my husband being dead and I being left a widow with Four Small Children.

March 1763. This month I went to Groton to live with my father Avery, where I lived three years and then I married to Captn Joseph Brewster of Norwich.

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FOODS AND FOOD VALUES

Everybody knows what **food** is. Nobody would hesitate to give a definition for it. However, it is not a simple task to draw a sharp line between a *food* and something which is not a food. Physiological chemists say that a *food* is a substance which provides materials for growth and repairs waste in the body. Foods, of course, may bring available fuel into the body, but it is not correct to think of foods burning in the body, as coal does in a stove. Mathews says: "It is the living matter which is burning, not the foods which are in it."

The different constituents of foods are called **food principles** and are classed under

1. Proteins
2. Carbohydrates
3. Fats
4. Water
5. Mineral matter
6. Vitamins

1. **Proteins** are nitrogenous organic substances found naturally only in living matter or as products of life processes. Chemically they are very complex and not well understood. They contain carbon, nitrogen, hydrogen, oxygen, and sometimes also sulfur and phosphorus. The protein molecule is large and complex, but on hydrolysis or digestion yields principally a mixture of relatively simple substances called *amino acids,* which are organic acids containing the animo group, NH_2. Proteins occur in all living matter—life or vital phenomena without protein seem to be unknown. The term *proteid* for protein is now obsolete.

2. **Carbohydrates** are organic substances consisting of carbon, hydrogen and oxygen. It would be simpler and better to call them *saccharids,* since they are usually classified as *monosaccharids, disaccharids,* and *polysaccharids.*

A *monosaccharid* is a compound whose formula contains the chemical group —CO—COH. Examples: *dextrose* (often called *glucose*), *levulose, galactose.*

A *disaccharid* is a combination of two monosaccharids. Examples: *sucrose* (cane sugar), *lactose* (milk sugar), *maltose* (malt sugar).

A *polysaccharid* is a combination of two or more monosaccharids. Examples: *starch, glycogen, cellulose, dextrin.*

In the presence of acids, alkalis, enzyms (ferments), especially in the presence of living matter, the di- and polysaccharids are

changed into *monosaccharids* by *hydrolysis,* which is the first step in digestion. It is believed that this change is necessary before the saccharids are absorbed in the body.

Sucrose (cane sugar) on hydrolysis yields *dextrose* and *levulose.*

Lactose (milk sugar) on hydrolysis yields *dextrose* and *galactose.*

Maltose (malt sugar) on hydrolysis yields only *dextrose.*

Starch is changed successively into *dextrin, maltose,* and finally into *dextrose.*

3. **Fats,** like the saccharids, contain carbon, hydrogen and oxygen, but differently combined so as to account for the difference in properties. The common fats, such as butter fat, lard, tallow, olive oil, cottonseed oil, are mixtures of *esters.* These esters (organic salts) are formed when *glycerin* reacts with a *higher fatty acid,* such as palmitic, stearic or oleic acid. The esters most abundant in fats are *glyceryl-palmitate, glyceryl-stearate* and *glyceryl-oleate.*

When hydrolyzed under circumstances similar to those mentioned under carbohydrates, fats are decomposed into *glycerin* and *free fatty acids,* and absorbed separately by the body, reuniting immediately after absorption.

In the more modern classification, instead of "fats," the term lipins (Greek *lipos,* fat) is used, and under this term are included *fats, oils, waxes,* and other fat-like substances.

4. **Water,** H_2O, by far the simplest and largest of all the constituents of the human body, is of the greatest importance to all living matter. According to our definition of food, water can be properly classified as an important one. It is sometimes not considered as a food, but as an adjunct or accessory to food. It was formerly believed and taught that water should not be taken at meal time because it dilutes the gastric juice and otherwise interferes with digestion. This has now been shown by extensive experimentation to be erroneous, and water with meals is decidedly beneficial. It is now also believed that most people do not drink enough water.

5. The term **mineral matter** refers to substances chemically known as *inorganic* compounds, mostly combinations of the elements known as *salts.* These compounds are found in all living matter of which they are an important and necessary constituent. The more common elements and compounds essential for vital phenomena are sodium, potassium, calcium, magnesium, iron, chlorids, sulfates, phosphates and carbonates. The body gets mineral matter from foods, to which

sometimes common salt, *sodium chlorid,* has been added. Sometimes mineral matter is also introduced in the form of medicine.

Mineral matter is necessary in carrying on life processes, although its function is not well understood. Many experiments have been made with mineral-free diets, such diets always producing serious nutritional disturbances.

6. **Vitamins** (*vita,* life, *amin,* derivative of ammonia) was the name given by Funk to substances found in foods which had been shown by experiments to be vitally necessary for the growth and maintenance of the body.

Chemically very little is known about them. They contain nitrogen, are basic and probably related to pyridin, quite unstable, being destroyed by more than moderate heat. As yet, vitamins have not been obtained in a pure form. They occur in many natural foods, but can be largely removed or destroyed by certain solvents or processes. Many modern processes of preparing foods, such as canning, heating, drying, milling of grains, curing of meats, remove or destroy most of the vitamins. Generally speaking, the more natural the food we eat, the more likely we are to get full benefit of the vitamins.

Vitamins are also known by a number of other terms of which perhaps the best is *growth essentials.*

At present vitamins are variously classified and no great uniformity can be expected until their chemical nature is better known.

Perhaps the most commonly used classification, which is based upon their properties and effect upon the body, is as follows:

1. Fat-soluble A, or anti-rachitic factor.
2. Water-soluble B, or anti-neuritic factor.
3. Water-soluble C, or anti-scorbutic factor.

The continued use of foods practically free from vitamins is the cause of certain nutritional disorders or deficiency diseases. There is considerable experimental and clinical evidence to show that there is a close relationship between a vitamin-less diet and rachitis, scurvy, beri-beri, pellagra.

Of the common foods containing one or more of the three classes of vitamins, the following should be noted:

Vegetables—Cabbage (raw), lettuce, rutabagas (yellow turnips), carrots, spinach, tomatoes, and especially all *green* vegetables.

Fruits—Oranges, lemons, limes, raspberries, apples, bananas.

Milk and Milk Products— Milk (best raw), cream, skim milk, dried milk, butter, cheese.

Fats and Oils—Butter, mutton and beef fat, cod liver and fish oils, peanut oil.

Meats— Beef, mutton, pork, glandular organs (kidneys, liver, brain, etc.), fat fish (salmon).

Grains—Wheat and corn (whole), rice (not polished), linseed, millet.

Miscellaneous— Peas, beans, nuts, yeast, nut butters, oleomargarine containing animal fats, eggs.

For a more complete list of foods containing vitamins, see p. 42.

A mixture of fat soluble and water soluble vitamins in the form of a powdered extract in capsules has been placed on the market by a large drug manufacturing house.

Food Values—The word *values* is used in the plural so that it may include the different factors which make a food valuable and desirable. In the narrower sense, the term *food value* or as it is sometimes called *fuel value,* refers to the heat equivalent or the energy equivalent of proteins, carbohydrates or fats, or mixtures of these in food materials. The amount of heat, measured in calories, that may be obtained by burning or metabolizing a food is only a part of the story of foods.

To some people the *value* of a food is closely related to its flavor; food is good and valuable if it tastes good. Others judge food on a dollar and cents basis; to them an expensive food is synonymous with a good food. Still others—many—do not connect value in any sense of the word with food; sometimes they think and eat, but most of the time they simply eat.

Composition—The chemical composition of foods is certainly an important factor. We should have some idea of percentages of the six constituents already mentioned in the previous pages. The charts which follow show composition in percentage figures which are still further visualized by varying amounts of different colors.

It is obsolete and erroneous, but still more or less common practice, to discuss and compare foods on a basis of chemical composition, including the calories calculated from such composition. Much more must be considered in order to determine whether or not a diet is adequate.

In case of proteins it is necessary to have not only sufficient *quantity* but the *quality* is vitally important. The proteins of the human body are formed from the amino acids obtained by digestion of food proteins. *But a food protein in order to be suitable for building body proteins must contain certain amino acids, such as tryptophan, tyrosin, lysin, and perhaps a few others.* A food protein is not "complete" or "adequate" unless it contains these amino acids. The carbohydrates of the food should yield on digestion some galactose, a monosaccharid, which seems to be intimately associated with nerve and brain tissue development. Galactose is obtained from lactose (milk sugar).

The **appearance** of an appetizing food adds greatly to its value. It stimulates the secretion of digestive fluids. One is inclined to believe that foods are often prepared to be photographed rather than eaten, and flavor as well as other values seem to be sacrificed for appearance. The value of a food depends in a large measure upon its natural appearance, or its appearance after it leaves the kitchen. Proper cooking, of course, does more than change the appearance of a food—it creates a food value, because it changes the composition, flavor and digestibility. Cooking also destroys germs and other organisms frequently present in uncooked foods. The appearance of a food, such as oleomargarine, may also be improved by coloring; by bleaching, as is done with flour; dyeing, as in the case of candies, mustard, maraschino cherries, and sometimes peas and ketchup and many others. These "improvements" in appearance often seriously affect the other properties and are really adulterations.

Without the proper **flavor** a food would be little better than a medicine. Flavor makes food appetizing, and palatability is one of its first requisites. The difference in price as well as digestibility is often due to flavor. Choice cuts of meats, certain kinds of fish or fowl, wines, cheese, all contain some substance or substances which are the "key to the whole food problem"—so-called by H. T. Finck in his interesting and readable book on "Food and Flavor." Common observations as well as research experiments prove that, everything else being equal, a food which has a desirable flavor is more readily digested than one which is not palatable.

Closely related to the flavor of a food is its odor. In fact, many people believe that what is usually considered to be the flavor tasted is in reality the odor smelled. Much attention is being given to cultivation, production, and preparation of foods so as to produce the most desirable flavors. The flavor of meats is improved by proper feeding of the animals; cheese is ripened by the addition of bacteria

producing certain flavors; unfertilized hens' eggs have a flavor superior to those fertilized.

Purity—That foods should be pure is almost axiomatic. Any suspicion or knowledge that our food is not pure immediately suggests adulteration. A food might be called adulterated when it is sold or eaten for something other than as it is labeled, but many foods are properly labeled and yet are most dangerously adulterated, or rather *contaminated.* Anyone who has ever given a thought to the subject of food adulteration in general, and contamination through unsanitary handling in particular, must be convinced that there is still much need for improvement in food sanitation. A few examples will be sufficient. Think of the possibilities of unwrapped bread becoming contaminated; there must be hundreds of persons, engaged in handling foods, who have infectious diseases; there are still many quick-lunch places where money and food are actually handled by the same person. As an example of progress in the matter of purer foods, the National Canners' Association has recently inaugurated a sanitary inspection service, and containers of foods passing such inspection have a seal to that effect.

Certainly an important factor in making a food valuable is its **digestibility.** This term is given two meanings: first, the *ease or readiness* with which a food is digested, i. e., time required; second, the *percentage* of digestibility. Some foods are quickly digested and more or less easily digested, while others leave an indigestible residue. Most grains, vegetables and fruits contain some cellulose, a substance chemically like starch, but practically indigestible. This is known as *crude fiber* or *roughage,* and is said to act as a stimulant to the muscles in the digestive tract.

Much that is said and written about the **medicinal value** of foods, especially of vegetables, is sheer nonsense, and most of the remainder is tradition. Chemists have not been able to isolate medicinal substances from vegetables or other foods. For that matter it would probably involve us in difficulties if we attempted to differentiate between medicines and foods that have a therapeutic value.

To read about a medicine-food combination, a sort of two-in-one, is interesting if one is not particular about facts. Tradition has it that celery is loaded with medicine that will heal diseased nerves, and fish is good for brains; spinach is good for the blood, because it contains iron and iron makes blood; lettuce is supposed to make one sleep. Some people eat watercress to remove pimples; carrots to prevent dyspepsia; dandelions for the liver; cucumbers to cool the

blood and onions for everything not included in the above. So far as we know, vegetables do not possess specific medicinal properties. However, certain foods, especially vegetables, are an important and necessary part of a well-balanced diet. They contain vitamins and probably other growth essentials; they are usually rich in desirable mineral matter. They contain considerable water in a highly purified form which is valuable for digestive processes; and finally, they contain indigestible matter, such as cellulose or woody materials, called "crude fiber" or "roughage," which stimulates peristalsis and regulates bowel action. Of course, in the sense that they correct nutritional disturbances, many foods might be considered as medicines.

Food Poisoning—Many years ago Lucretius wrote that "What to some might be food, yet to others becomes fierce poisons." This, as nearly everyone knows, is literally true in the case of certain foods when eaten by certain people. Some people do not tolerate butter, others dare not eat eggs, or cheese, or certain vegetables or fruits, these foods producing poison-like effects. Such people are said to have a *food idiosyncrasy,* which of course does not explain anything.

What is often reported as food poisoning is due to contamination of foods by foreign substances, such as preservatives, disease germs, products of bacterial action. *Ptomains,* produced by certain bacteria in decomposing foods, are extremely poisonous, but fortunately are not encountered as frequently as is popularly supposed. In the popular mind, food in tin cans is almost always under suspicion. But tin has nothing to do with ptomains—the two have only the alliteration in common. Another food poison, which only lately became quite popular—or notorious—is the one produced by the *botulinus* bacillus. In several instances a number of people died shortly after eating canned ripe olives; investigation showed that the olives had not been properly sterilized.

Prices—The commercial value of foods is intimately related to diets and nutrition. Frequently a change or a fad in diets causes a change in price. But much more frequently the reverse is true; a change in prices produces radical changes in diets. When potatoes were one dollar and twenty cents a peck, people ate less of them, and the steady rise in meat prices is gradually lessening meat consumption. High prices of flour and bread turns people's attention toward corn products. It will not be necessary to discuss the reasons for high prices; nearly everybody has a theory about them. The writer believes that high prices in this country are due principally to the increasing

amount of gold and use of credits. Other price regulating factors are supply and demand, and speculation.

By **fuel value** is meant the amount of heat, expressed in *calories,* which is obtained by oxidizing or burning a food. Experimentally, this is determined by using an apparatus called a *calorimeter.*

Carbohydrates and fats have about an equal fuel value, while that of fat is more than twice as great. The daily calorie requirement varies with age, weight, work, etc., but for a man doing ordinary work, about 3000 to 3500 calories should be supplied by the food. A simple and safe rule in dietetics is *to provide a mixed diet which will give from* 3000 *to* 3500 *calories daily;* the proteins, mineral matter and vitamins will take care of themselves if proper emphasis has been put on a *mixed* diet.

References—More progress has been made in food science in the last 15 years than in all previous time. Many trained investigators are now studying foods and conducting researches in nutrition in our colleges, universities, medical schools, state experiment stations and research institutions such as those built up by Rockefeller, Carnegie, Russell Sage and others. Reports and bulletins issued by these investigators are of course the more reliable sources of information about foods.

The excellent and interesting books on this subject would fill not only a five-foot shelf, but an entire book-case. The following are certainly excellent for general reading:

Hawk: What We Eat and What Happens to It.

McCollum: The Newer Knowledge of Nutrition.

Medical Research Committee Report (British): Present State of Knowledge Concerning Accessory Food Factors (Vitamins).

Wiley: Foods and Their Adulteration.

Wiley: Our Daily Bread.

Stiles: An Adequate Diet.

Fisher and Fisk: How to Live.

Mathews: Physiological Chemistry.

Brice: Modern Theories of Diet.

Explanation of Terms

Calorie—This term is used as the unit of heat measurement. It is the name given to that amount of heat which will raise the tem-

perature of one kilogram (1000 grams) of water one degree centigrade. A calorie will raise the temperature of nearly four pounds (3.968) of water one degree Fahrenheit.

Oxidation— Commonly called *burning*: the union of a substance with oxygen, forming oxids, and liberating a certain definite amount of heat. Such heat is called *heat of combustion,* and is measured in calories.

Calorific value Food value Fuel value Heat value Energy equivalent Heat equivalent	These and similar terms are used in stating the number of calories of heat produced when a certain definite amount of food is oxidized.

Rich or Concentrated Food—One that has a high calorific value.

Complete Food—One which contains at least appreciable amounts of proteins, carbohydrates, fats, minerals and growth essentials. Such a food is always physiologically complete, if a sufficient number of calories are provided.

Relish—Something eaten for its flavor, without reference to food value. Relishes seldom have an appreciable food value and are eaten alone or mixed with other foods.

Physiological Heat Value—A term suggested to express the number of calories *actually* produced in the *body.* This is somewhat less than the theoretical, since in the body the amount and kind of oxidation is different from that taking place in a calorimeter (a laboratory apparatus).

Amino Acid—An organic acid which contains one or more amino (NH_2) groups. Most of the other acids do not contain nitrogen.

Complete Protein—Adequate Protein—One which has in its chemical make-up one or more of the amino acids necessary for the formation of new protein in the body.

Explanation of the Charts

The best method of showing the composition of foods and of dietary values is by means of colored charts. By far the most elaborate and accurate charts of the kind are those prepared by Professor C. F.

Langworthy of the United States Department of Agriculture, and published by the Department. The percentages of composition used are based largely upon data given in Bulletin 28 of the Department of Agriculture, "The Composition of American Food Materials," compiled by Atwater and Woods.

By permission of the Department of Agriculture, the Langworthy charts have been used as a basis for the following reproductions. Besides the reduction in size, the following changes were made. In the originals water is represented by a green color, while in the following charts the part intended to show the proportion of *water* has been left *uncolored.* The ash is shown by fine dots (stipple) instead of a dark gray in the originals. Representative examples of different classes of foods are shown, first as to composition and second as to food values. The composition is indicated by percentage figures of proteins, carbohydrates, fat, water and ash or mineral matter. These percentages are given to the first decimal place only, and represent averages of a great many analyses of the edible portions of American food material. In these charts the composition is visualized by using different colors for different components. The amounts of colors are approximately in the proportion indicated by the percentages. The color key appears at the top of each chart.

Proteins are shown in red. The percentages shown are obtained by determining the percentage of nitrogen by a chemical analysis of the food and multiplying this by 6.25, giving the percentage of protein.

Fats are shown in yellow. The term "fat" in food analysis usually refers to the substances that are *extracted by means of ether* and are sometimes called "crude fat" and sometimes include small amounts of substances that are not fats. Natural fats are always mixtures of a number of compounds, each of which is chemically classed as a fat. Chemically, a fat is nearly always a compound formed by the union of glycerine and a fatty acid. Foods, therefore, contain not only different *amounts* but also different *kinds* of fats.

Carbohydrates are shown by a blue color. In the edible portions of foods, carbohydrates consist principally of starches and sugars; but in analytical data the term "carbohydrates" includes also cellulose, gums, and woody fiber. The cellulose and woody fiber are usually present only in small amounts and are not digestible; they are also known by the term "crude fiber." Some analyists define carbohydrates as "nitrogen-free extract plus crude fiber."

Ash, also called mineral matter, is shown in the finely dotted part and consists mainly of salts (chlorides, phosphates, sulphates)

of potassium, sodium, calcium, magnesium and a few other elements. Analytically, the amount of ash is determined by burning away the combustible part of a food and weighing the incombustible residue.

Water—The portion of the pictures intended to represent the water in the foods is left uncolored. In the analysis of food, water is determined by heating in a drying oven at a temperature somewhat above 100 degrees C. to constant weight. The loss is calculated as water.

Fuel Value—In addition to the chemical composition, the charts show the *fuel value* of each food by a black rectangle and a statement in figures. The black square in the key represents one thousand large calories. The black rectangle under each food visualizes approximately the number of calories per pound. In the charts the term "fuel value" is used. This is the term usually used to express food value, although the two are not synonymous. A food is looked upon as a fuel,—a body fuel,—and if a food is nearly all digested, the term "fuel value" is sufficiently accurate.

Values Not Shown in Charts

It should be noted that foods are shown as consisting of five things: proteins, fats, carbohydrates, ash and water. It must not be inferred that foods contain nothing else. Many foods contain small amounts of substances that are chemically and physiologically different from any of the above mentioned.

Extractives, so-called, are water soluble, nitrogenous substances and analytically included under proteins, principally in meats to which they give flavor.

Flavoring Substances—Small amounts of organic salts (esters) are present in all fruits.

Vitamins—These are not shown in food chart or analyses, since as yet no methods for their quantitative determination have been discovered. It is fairly certain, however, that the amount is very small. An alphabetic list of foods and the probable vitamin value of each indicated by one or more + signs appear after the charts.

Milk and Milk Products

Whole Milk—The most noticeable feature of milk is its large amount of water and its low fuel value. Alone it would not be sufficient to sustain a man at work; it would require too great a bulk to supply the necessary energy or calories. Milk is often called a complete or perfect food. This is true with reference to the young since it contains all the food components necessary for maintaining growth and supplying energy.

Milk protein is complete in that it contains the amino acids necessary for tissue formation, and in that it is easily digested.

Milk fat contains that fraction of vitamins designated as "fat soluble A," essential for growth. This "fat soluble A" is also found in some other foods. Milk is an important source of vitamins. Pasteurizing or sterilizing of milk partly destroys the vitamins. This deficiency can be made up by the use of orange juice or vegetable extract.

The principal carbohydrate in milk is *lactose,* a disaccharid which on hydrolysis, the first step in digestion, breaks down into two monosaccharids, i. e., *dextrose* and *galactose.* The galactose is an important factor in the development of brain and nerve tissue, and no other sugar can be effectively substituted for it.

The ash, or mineral matter, of milk contains the inorganic food essentials particularly well suited for the development of body tissues.

Skim milk differs from whole milk in its lower percentage of fat, and a correspondingly higher percentage of all the other components, and a lower fuel value. Its proteins, carbohydrates, mineral matter and vitamins make it valuable as a food, although this is frequently not appreciated or understood.

Buttermilk closely resembles skim milk. Some of the lactose has undergone lactic fermentation and lactic acid bacilli and lactic acid are present. On account of these latter, buttermilk is believed to have a special medicinal value.

Cream, as a food, resembles whole milk, except that on account of its high percentage of fat it has a fuel value nearly three times as large.

COMPOSITION OF FOOD MATERIALS.

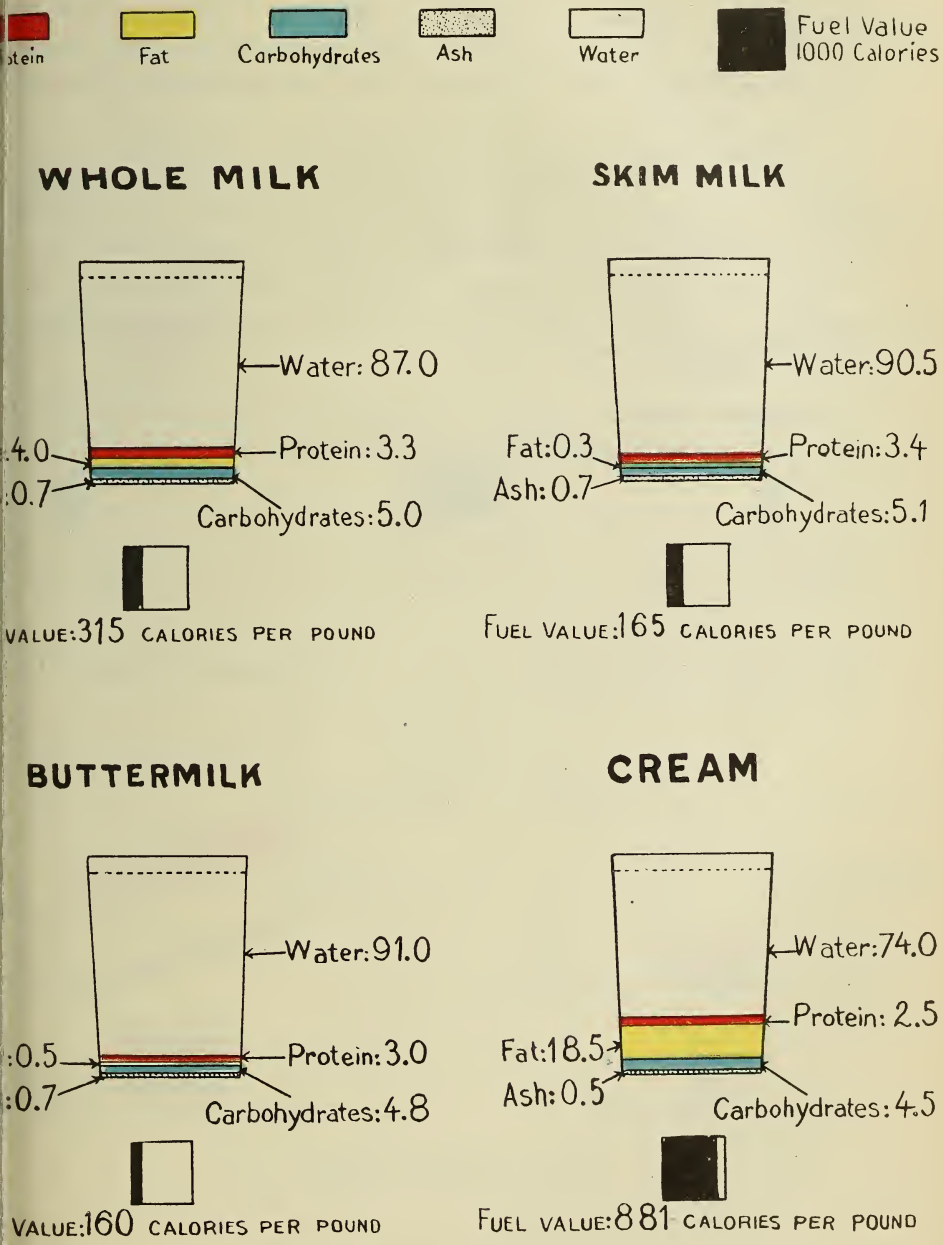


Chart 1—Milk and Milk Products

Eggs and Cheese

Eggs, in spite of their high percentage of water, are a rich food, i. e., they have a high fuel value due to the fat contained in the yolks. Their protein content is about eight-tenths as much as that found in meat. The fat of eggs contains the vitamin "fat soluble A" mentioned under milk. Eggs contain desirable mineral matter.

Cream Cheese is made from whole milk. The name "cream cheese" is somewhat misleading, since cheese is never made from cream alone. On account of a high fat content, cheese has a considerable food value and is a rich food. The proteins of cheese contain the animo acids essential for growth, while the fat contains the "fat soluble A" substance. Both proteins and fats are, therefore, "complete" like those in milk.

Cottage Cheese is made from skim milk, but since it contains less water than the latter its fuel value is correspondingly higher.

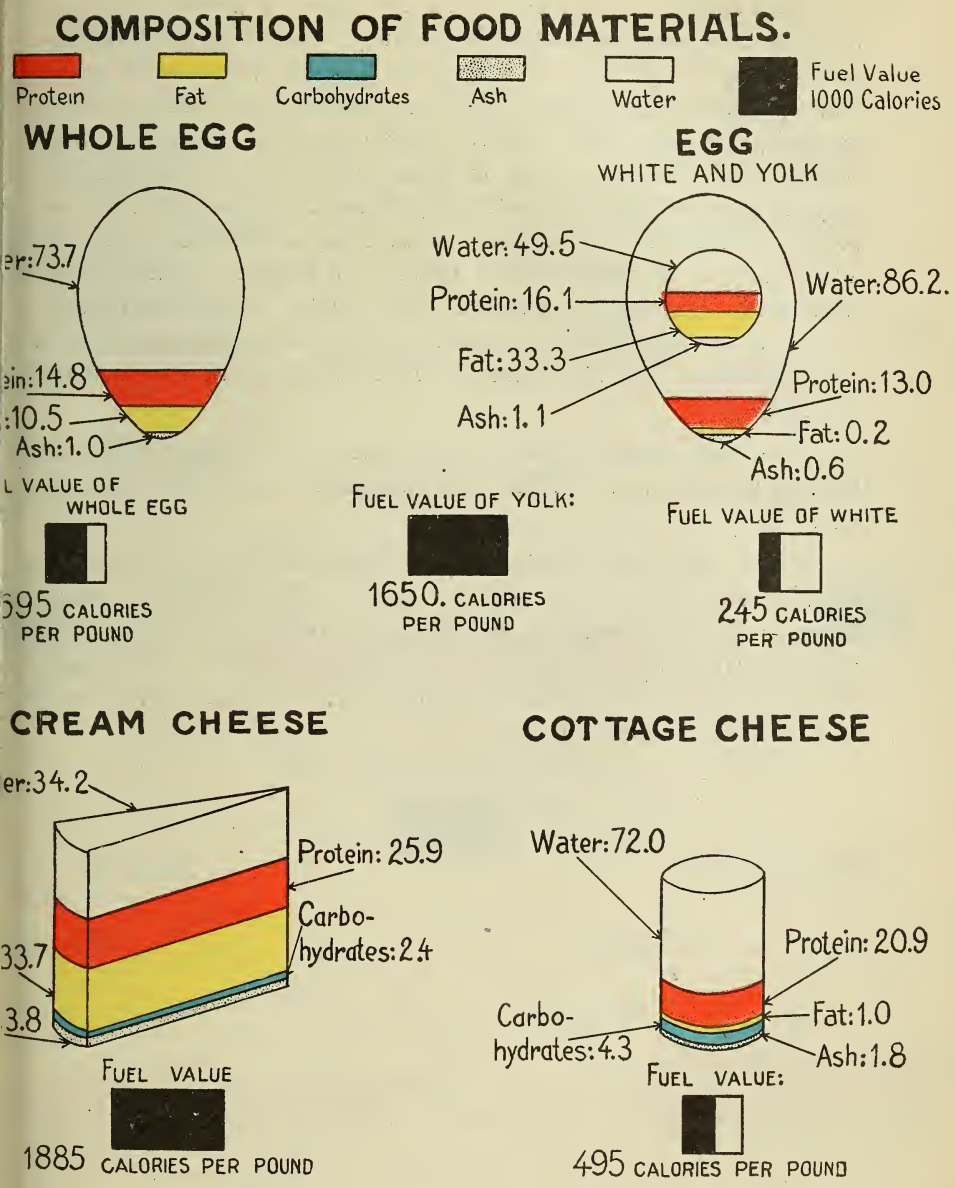


Chart 2—Eggs and Cheese

Meat

Beef Steak, as represented on the chart, is perhaps the most common form of meat used in this country. The fact that it contains nearly sixty-two per cent of water must be a surprise to most people. One is accustomed to think of meat as a protein food, but the protein percentage is only 18.6. Many foods contain as much, or more, protein. But the great value of meat proteins lies in the fact that they are especially palatable and easily digested. Associated with these proteins there are "extractives," or flavoring substances, which also add greatly to the palatability of meats. On account of these extractives, meats are used for flavoring other foods. Meats contain some "complete proteins" and "fat soluble A," but not as much as eggs or milk products. The fuel value of beef-steak is a little less than that of bread.

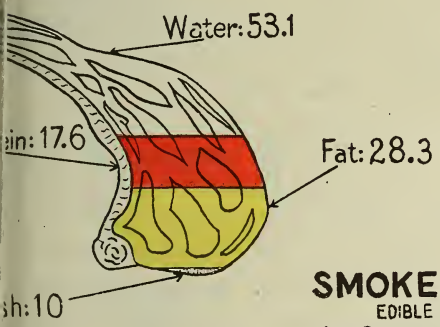
The other meats shown on the chart have a higher fuel value because the percentage of water in them is less, especially in smoked ham.

Physiologically, or nutritionally, no appreciable difference is known to exist among the various kinds of meat. The difference in flavor, however, is an important factor, because, everything else being equal, the more palatable a food is, the more digestible it will be. The popular belief of a considerable difference between light and dark meats seems to have no foundation in fact.

COMPOSITION OF FOOD MATERIALS.

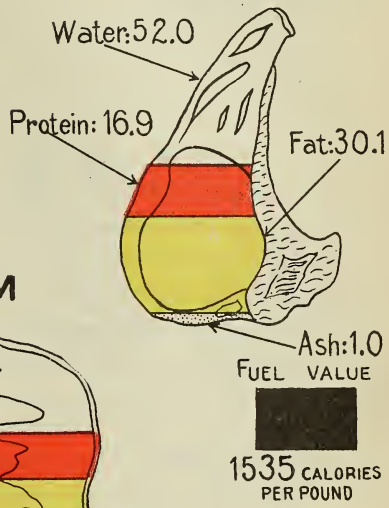
Protein | Fat | Carbohydrates | Ash | Water | Fuel Value 1000 Calories

LAMB CHOP
EDIBLE PORTION



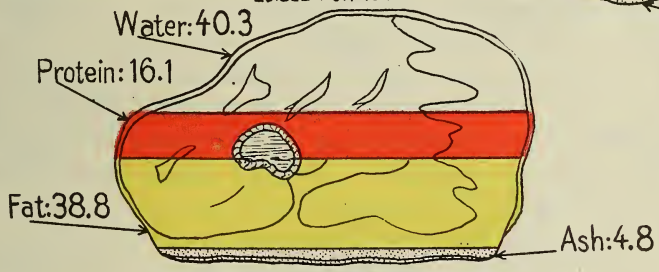
VALUE
CALORIES
POUND

PORK CHOP
EDIBLE PORTION



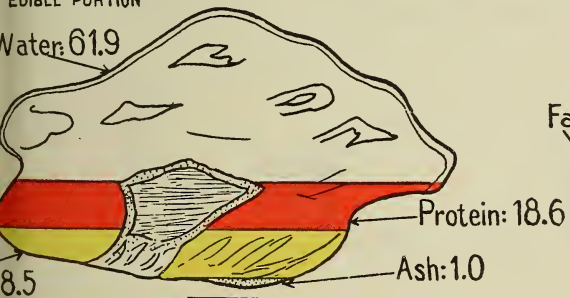
FUEL VALUE
1535 CALORIES PER POUND

SMOKED HAM
EDIBLE PORTION



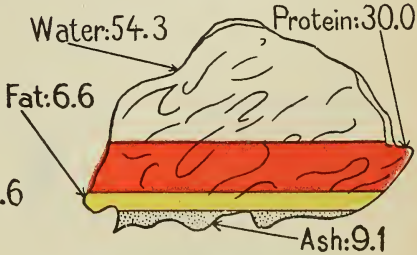
FUEL VALUE 1875 CALORIES PER POUND

EF STEAK
EDIBLE PORTION



FUEL VALUE: 1090 CALORIES PER POUND

DRIED BEEF
EDIBLE PORTION



FUEL VALUE: 810 CALORIES PER POUND

Chart 3—Meat.

Fish and Oysters

Fish belongs to the meat foods. Chemically and physiologically, fish is practically meat. The percentage of water is higher than in any other protein or meat food; the protein percentage is about the same as that in meat. Fish is classified as lean and fat. Whitefish and cod are examples of the lean class, while mackerel and salmon represent a fat fish. The fuel value of a lean fish is about one-fourth as great as meat, while a fat fish has a value of about one-half that of meat. Fish contains less extractives than meat and is about as digestible as the latter. Fat fish and fish products, such as salted, smoked and pickeled, are more difficult to digest than when fresh.

Oysters contain about the same percentage of water as milk, but only about one-third as much fat. On this account oysters are a very dilute food, even more so than milk. Their food value is quite low, and they are eaten more as a relish than as a food. They are one of the few animal foods containing a carbohydrate, namely, glycogen, sometimes called animal starch or muscle sugar. Oysters are easily digested, and almost universally used. Their popularity is no doubt due to the fact that they can be eaten raw, or prepared in so many different ways. Enormous quantities are used and the natural supply is supplemented by "oyster farming." Oysters are usually three years old before they are marketed. They are grown in salt water, and before marketing they are usually "floated," or fattened, in fresh water. During this process they absorb considerable water but lose some of their original flavor. If the floating has been done in contaminated water, oysters, especially if eaten raw, may be the means of transmitting typhoid fever.

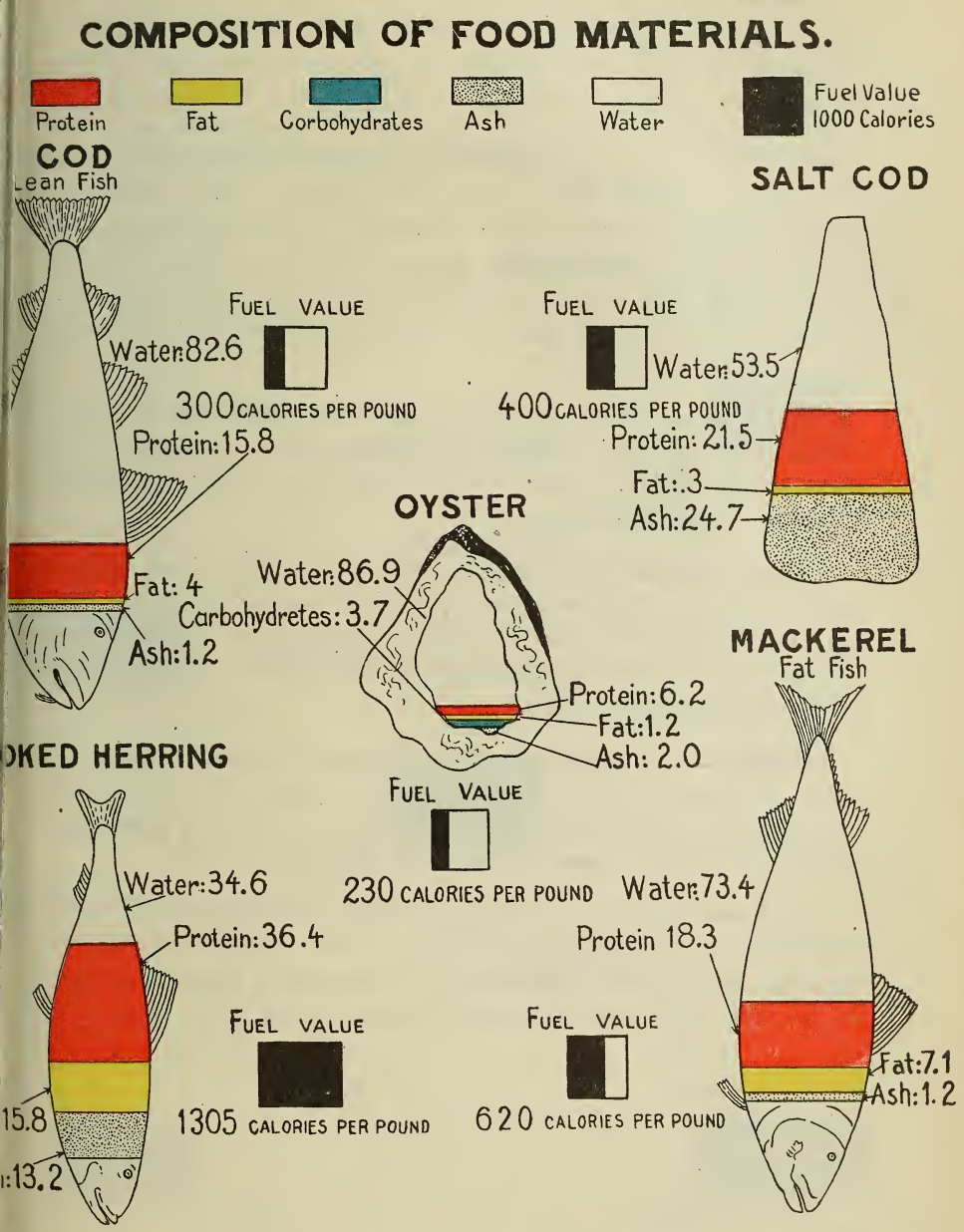


Chart 4—Fish and Oysters

Fat Foods

Butter is the most important fat food on this chart. It is a milk product and, like milk, contains "fat soluble A," of course in a much larger amount. The amount of fat in butter should not be less than 82.5 per cent. The percentage of water should not exceed sixteen per cent. Butter fat is one of the most palatable and most easily and completely digestible fats; it contains the growth essentials and a diet should always include milk or some milk product. Since butter substitutes hardly ever contain growth essentials, they are substitutes only in that they have approximately the same fuel value. Butter is a rich food, its fuel value being three times that of meat, or of bread, and nearly five times that of eggs. The ash or mineral matter in butter consists largely of added salt.

Olive Oil is all fat and has a higher fuel value than any other food except lard which furnishes the same number of calories. It is about as digestible as butter fat, but does not contain the growth essentials found in the latter.

Lard is the fat obtained from the hog and differs from olive oil mainly in flavor, otherwise these two fat foods are quite similar. Contrary to popular belief, lard is nearly as digestible as butter, and the difference is probably not noticeable to the ordinary digestive tract. It lacks the vitamins of butter.

Bacon, the fat food obtained from the hog, is usually classed as a meat. It contains about one-half as much protein but nearly four times as much fat as beef-steak. This high percentage of fat gives to bacon a fuel value of nearly three times that of beef-steak.

Beef suet represents internal fat tissues of beef cattle. When heated the fat is melted out and is then called *tallow.* Like the other fat foods, its fuel value is high, but it is not so easily digested as butter fat, nor does it contain the growth essentials of the latter.

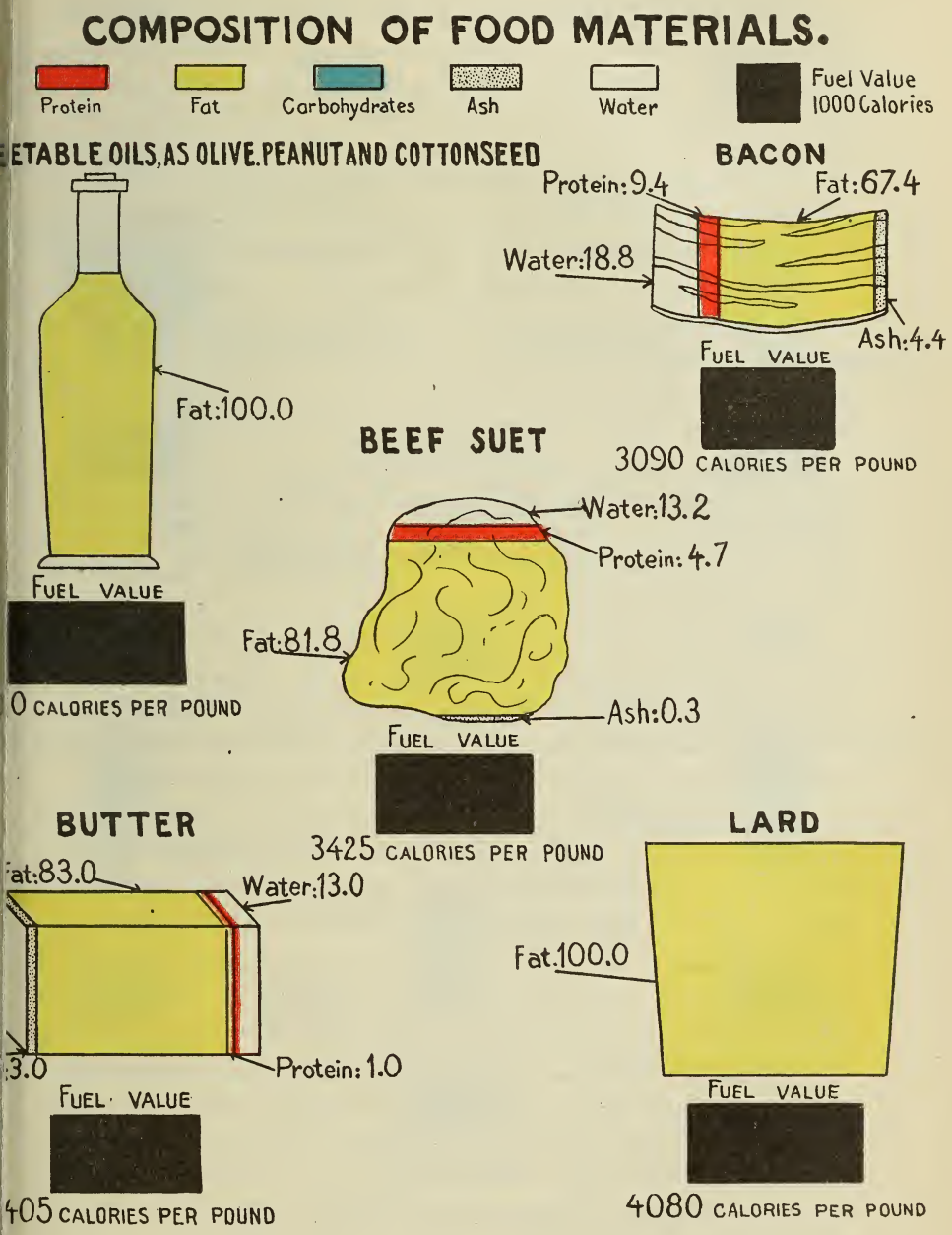


Chart 5—Fat Foods

Cereal Grains

Wheat is the most important food grain in this as well as in many other countries. It is usually classed as a carbohydrate food, but it also contains considerable protein, about two-thirds as much as found in meat. Whole wheat contains nutritionally valuable mineral matter as well as vitamins, and whole wheat preparations are excellent foods. The proteins of wheat are not as complete physiologically as those of meat, nor do they have the stimulating flavor of the latter. Measured in calories, wheat has nearly the same nutritional value as cheese, about one and one-half times that of meat and nearly five times that of milk.

Corn is the next most important food grain. It differs from wheat principally in its greater fat and lesser protein content and a slightly higher food value. Cornmeal and corn flour will no doubt be the important wheat substitutes of the future. Corn products are especially deficient in the amino acids necessary for tissue development.

Rice is sometimes called the grain that feeds one-third of the world. It contains about one-third less protein, but somewhat more starch than wheat. It has a good flavor, is readily digested, and when "unpolished" contains vitamins. Polished rice should not be used as a food unless in a mixed diet.

Oats contain more fat and mineral matter than the other grains. Its nutritive value is about the same as wheat. There is no special reason why it should not be eaten in summer as well as in winter. The first cereal breakfast food was made from oats. Wheat, corn, rye and rice are now also used extensively for that purpose.

Rye is the food staple of Russia and Germany. In the United States rye is almost neglected as a food. Its composition is almost identical with wheat, but on account of its dark color, and lack of gluten, a rye loaf does not appear as palatable as wheat bread.

Buckwheat is not a cereal botanically, but is usually classed with the cereal foods. Comparatively small quantities of buckwheat are used, mostly in the form of flour which is dark and used for pancakes.

Whole-Wheat Bread is incorrectly named, since it is very rarely made from whole wheat flour. What is ordinarily called whole wheat flour does not contain all the original wheat kernel, but is partly refined by bolting. Bread made from such flour has a slightly lower food value, but contains more protein and mineral matter than ordinary white bread. It belongs to a class of foods which are not over-refined. Ordinary white flour is an over-refined food, and alone would not be a complete food.

COMPOSITION OF FOOD MATERIALS.

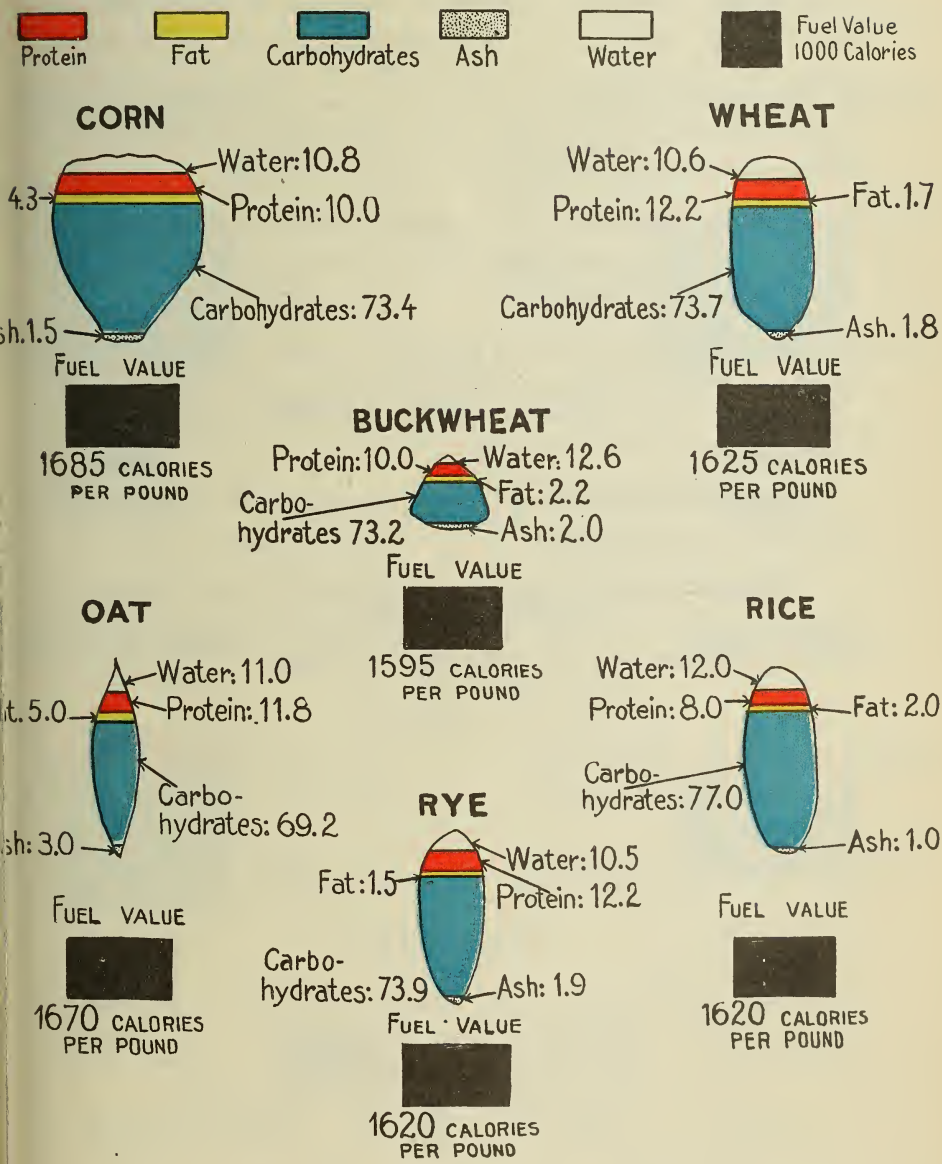


Chart 6—Cereal Grains

Bread and Other Cereal Foods

Bread—By this term, as ordinarily used, is meant wheat bread made from the so-called "patent" or "baker's" flour. These flours do not represent the entire wheat kernel; much that is nutritionally valuable has been removed with the bran and by bolting. Bread contains more water than most people suspect and the percentage of protein is one-half that of meat. Its nutritive value is four times that of milk, nearly twice that of eggs and a little more than that of meat. It is usually considered a carbohydrate food, and is cheap.

Toasted bread differs from ordinary bread in a lower percentage of water and a correspondingly higher percentage of the other components and fuel value.

Corn bread, as shown in the chart, is made from refined cornmeal, i. e., ground whole corn from which the outer coating and most of the germ with its protein and fat have been removed. Its food value is about the same as bread.

Oatmeal breakfast food has a low food value if cooked and contains 84½ per cent. of water.

Macaroni when cooked is made from wheat flour containing a high percentage of protein. Like all other cooked cereal foods, it has a high percentage of water and a low food value.

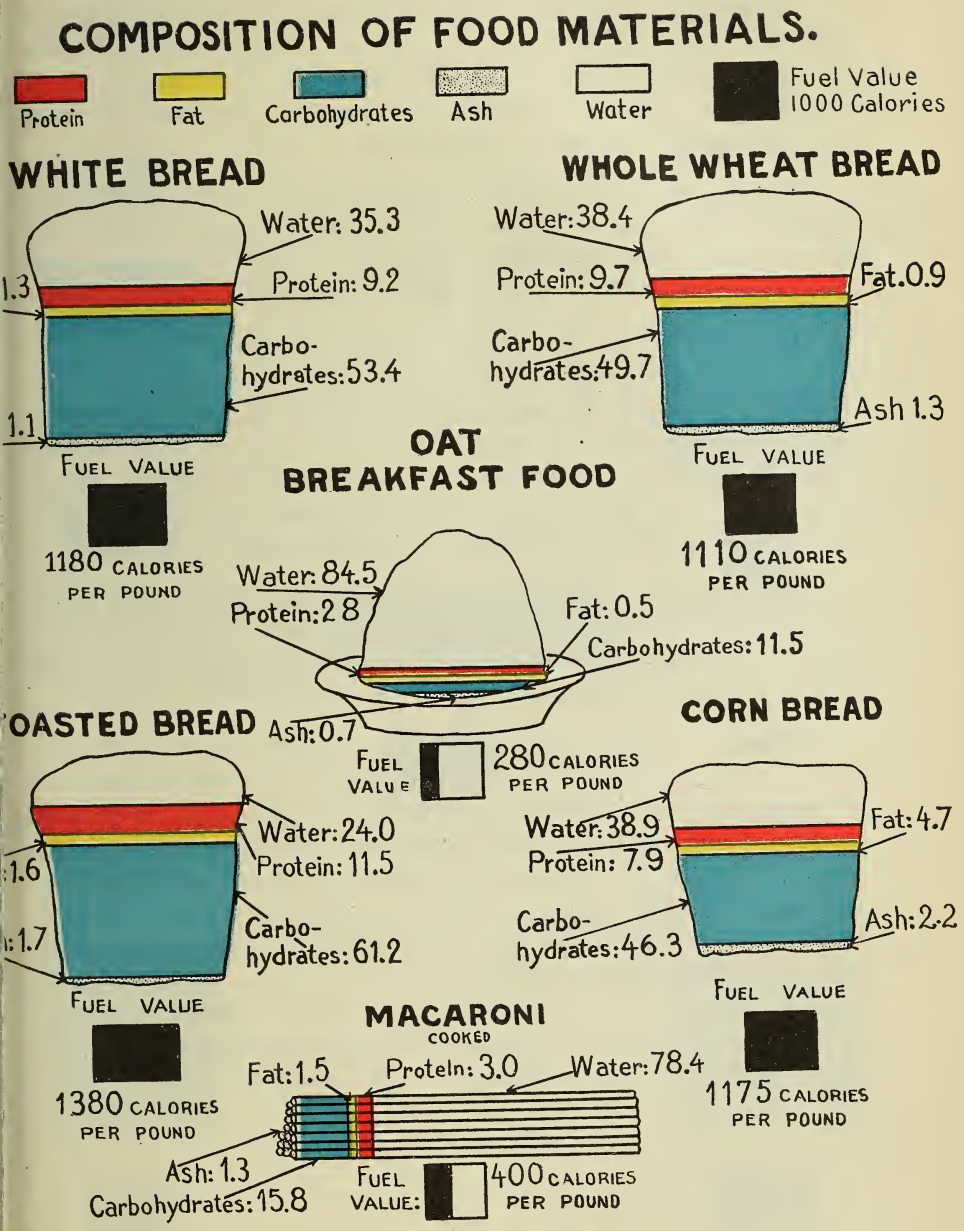


Chart 7—Bread and Other Cereal Foods

Sugar and Similar Foods

Sugar—Cane and beet sugar are chemically and physiologically identical. Some people claim they can tell the difference; chemists cannot. Sugar is a refined food and therefore lacks vitamins. It is considered a rich food, its fuel value being one and one-half times that of bread. Sugar is all carbohydrate.

Molasses is the by-product of sugar making. It is a carbohydrate food and contains a mixture of cane and invert sugars. It also contains mineral matter and other substances originally present in the cane juice from which it was made.

Candy, as shown, is the stick or hard variety and represents the purest kind. It is a rich food, but not much used in the stick form. There are, however, many other forms of candy and enormous quantities are manufactured and eaten. The art of candy making, together with our national taste for all kinds of sweetmeats, is highly developed. The fuel value of most candies is high, depending on what and how much is mixed with the sugar used in making them.

Maple sugar is chemically identical with cane sugar, but as found in the market contains water, mineral matter and flavoring substances. Maple sugar and syrup owe their popularity and palatability to these flavoring substances obtained from the maple tree.

Honey is usually erroneously defined as the nectar secreted by flowers and gathered by bees. The bee does more than to gather it. By means of its long tongue the nectar is sucked out of the flowers and swallowed into the honey sack of the bee. Here the nectar, which consists of about thirty per cent. of sugar and about seventy per cent. of water, undergoes chemical changes not well understood. The sugar is changed into invert sugar, and small quantities of gums and volatile substances, some of them originally present in the nectar and others developed by the bee, impart to honey its flavor. The carbohydrates of honey are mainly a mixture of dextrose and levulose—a natural invert sugar.

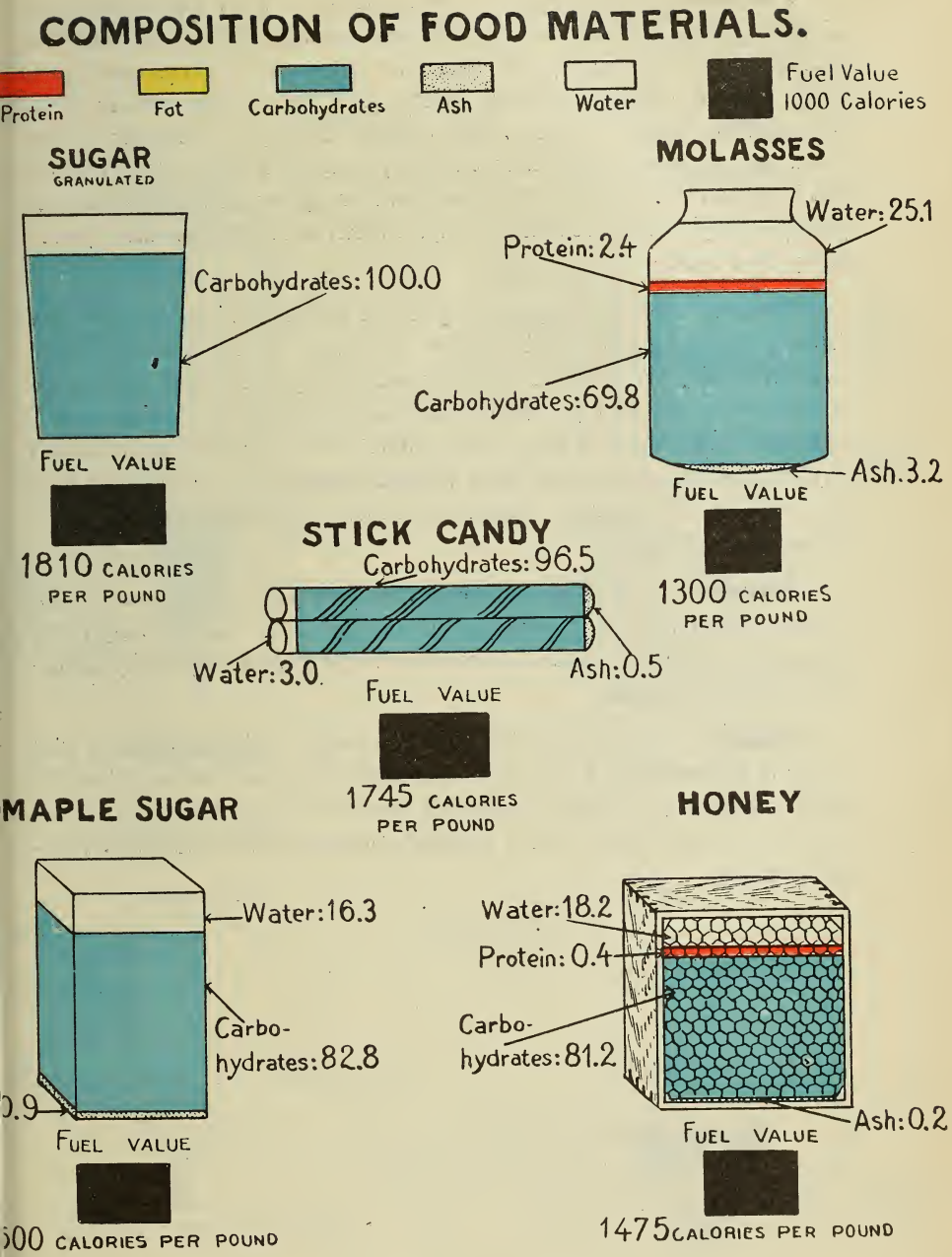


Chart 8—Sugar and Similar Foods

Vegetables

Potatoes—Most noticeable about potatoes is their high percentage of water and low food value. They are not a rich food and for that reason can be, and usually are, eaten in comparatively large quantities. They contain valuable mineral matter and are usually classed as a carbohydrate food. A diet which consists largely of potatoes is one sided, and should be supplemented with protein and fat foods. Potatoes can be grown almost anywhere and have an agreeable taste when prepared in any one of dozens of ways, which accounts for their popularity as a food.

Onions, although they have quite an appreciable food value, are eaten usually as a relish and used for flavoring. Because of their odor and flavor they are believed by many people to possess medicinal properties. Hence the saying, "An onion a day will keep the doctor away." Chemists and dietitians have been unable so far to discover in onions any therapeutic value other than that of vegetables in general as part of a well balanced diet. Vegetables usually supply valuable mineral matter and vitamins.

Parsnips contain nearly as much starch as potatoes, but on account of their flavor they are not as popular as the latter. Like many other vegetables, parsnips contain valuable mineral matter, especially potassium and phosphates.

Celery is eaten as a relish, not as a food. It is often stated that celery is a brain food, but why it should be called such nobody seems to know. Nothing has been discovered in celery which could be classed as a special brain food, and it probably possesses only the usual vegetable values.

COMPOSITION OF FOOD MATERIALS.

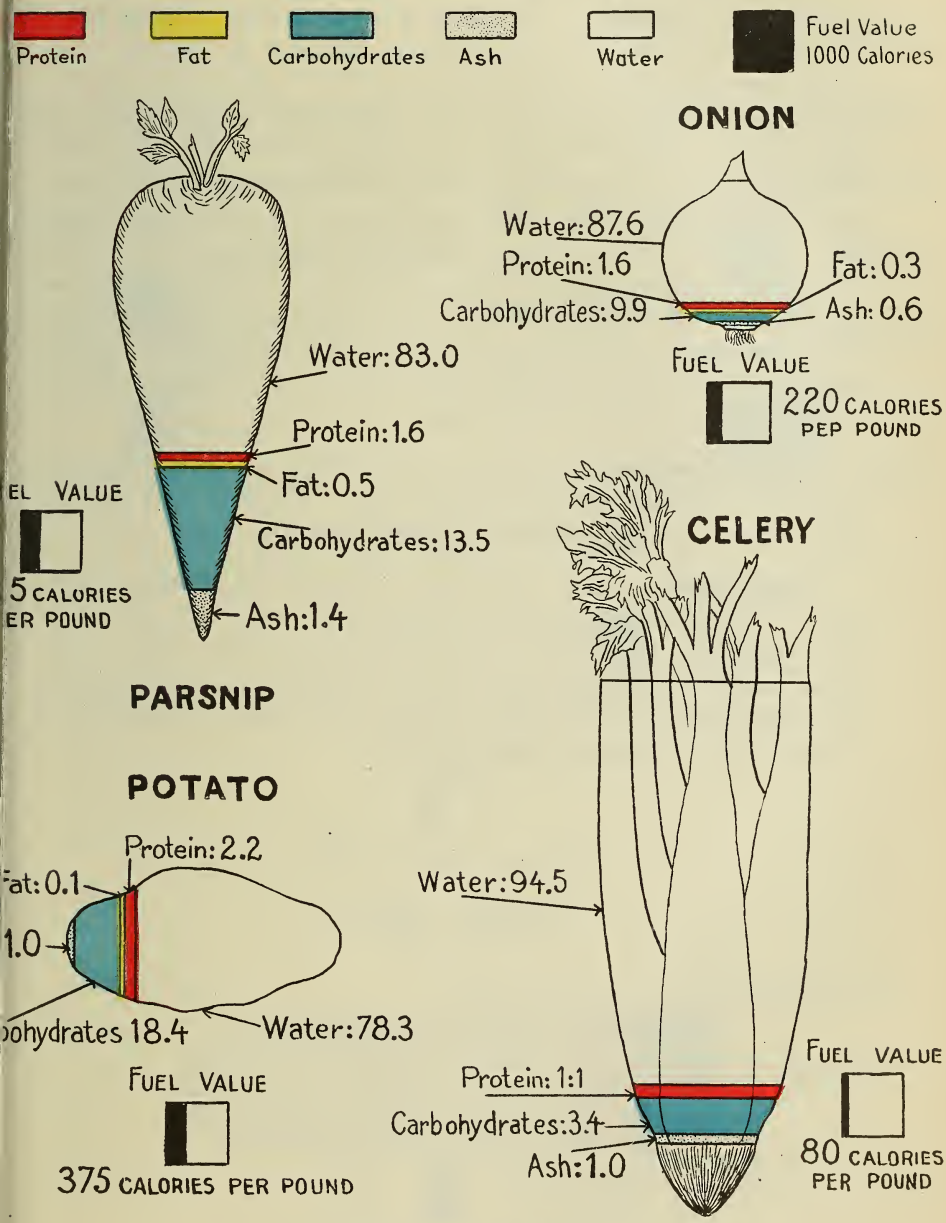


Chart 9—Vegetables

Beans and Corn

Beans—Of the foods shown in this chart, dry beans are the most important. Cooked and canned, either alone or with pork, tomatoes, etc., they are a popular American ready-to-serve food. Baked beans are an important item in our dietary. They are a "mixed" food, containing considerable carbohydrates, proteins and mineral matter. They contain more carbohydrates than bread and more than twice as much protein. Meat has less protein than beans, but the latter, although sometimes called the poor man's meat, should never be wholly substituted for meat. The proteins of beans are not dietetically complete and do not have the agreeable flavor of meat proteins. The difficulty in digesting beans, resulting in the gas formation which some people experience, is believed to be due to the peculiar character of the carbohydrates. The composition of *peas* is almost identical with beans and most of what has been said about the latter applies to peas also. Beans and peas are rich foods.

Fresh beans, as shown in the chart, contain more water and less of the other components than the dry beans. Green string-beans are mostly water and resemble the so-called green vegetables.

Green corn, or corn on the cob, although three-fourths water, has considerable food value on account of its starch content. It is both a relish and a food, and is classed with the so-called green vegetables. Green or succulent vegetables are valuable because they usually contain necessary mineral matter, vitamins, and supply the purest kind of water for our digestive processes.

COMPOSITION OF FOOD MATERIALS.

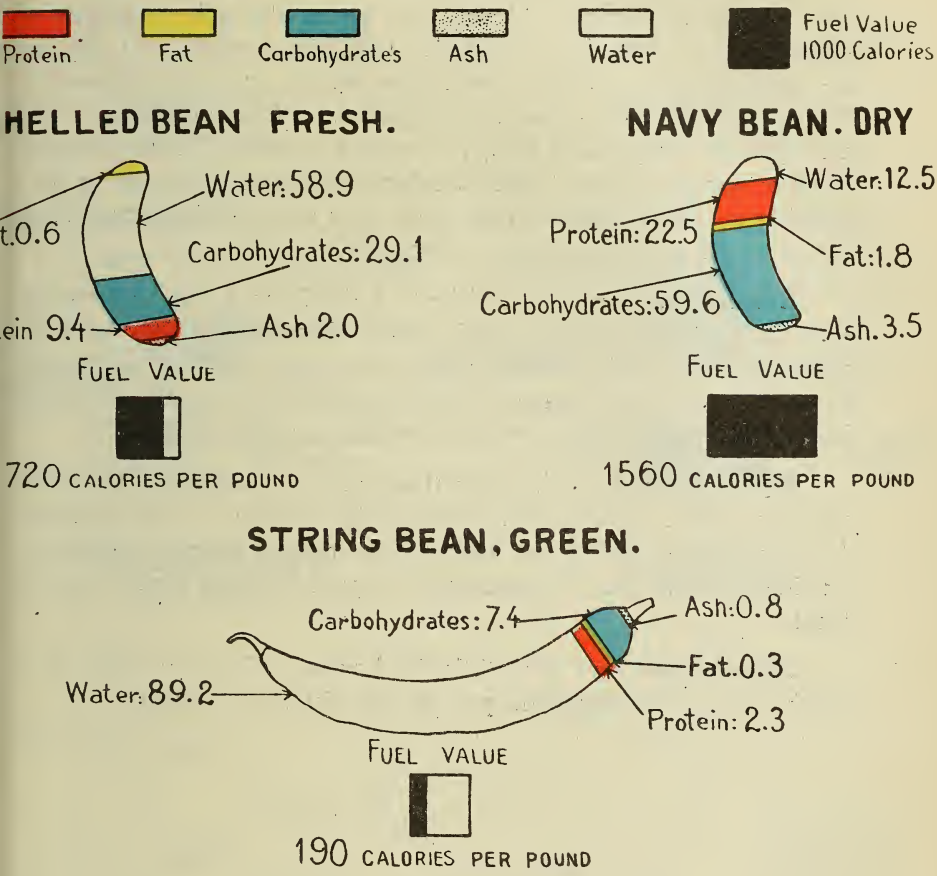


Chart 10—Beans and Corn

Fruit

Apples are undoubtedly the most popular fruit in America. Their fuel value, which is due principally to carbohydrates, is quite low, and they are not a rich food. Like other fruits, although no medicinal substances have been found in apples, they are of special value in the diet on account of vitamins, mineral substances, and their agreeable flavor, which act as a stimulant to digestion. Their popularity is due principally to the pleasant flavor, or variety of flavors, in the different kinds of apples and also to the fact that they can be eaten raw or prepared in an almost endless number of ways and combinations. They can be grown almost anywhere in America.

Bananas are one of the richest of the fresh foods, and consist principally of carbohydrates and water. Like apples, they have an agreeable flavor and ordinarily they are a cheap fruit. They would be more popular and cheaper if they could be more extensively raised in this country. Bananas, when eaten raw, supply vitamins.

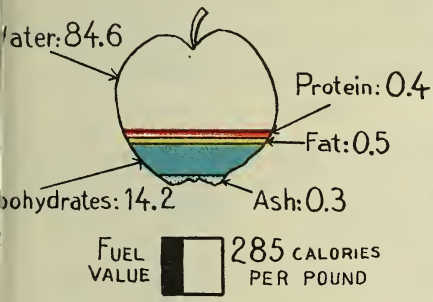
Figs are a rich food, richer than bread or meat, and about the same as beans. Their food value is due mainly to carbohydrates (mostly sugar). They are supposed to possess special therapeutic qualities, but, so far, no medicinal components have been found in them.

Strawberries have very little food value. They are eaten as a relish and play no important part in our dietary as a food.

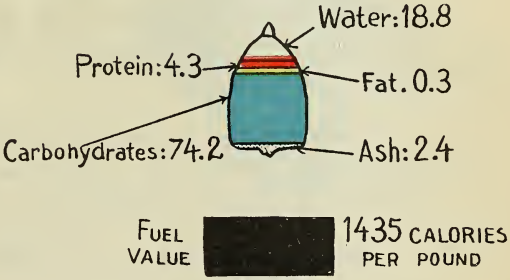
COMPOSITION OF FOOD MATERIALS.

Protein | Fat | Carbohydates | Ash | Water | Fuel Value 1000 Calories

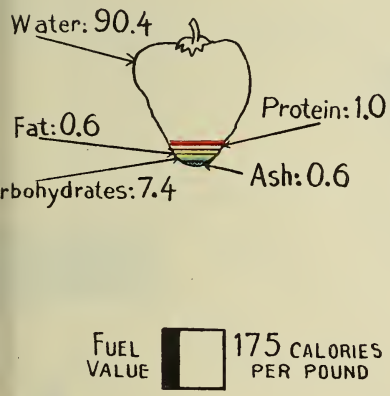
APPLE
EDIBLE PORTION



DRIED FIG
EDIBLE PORTION



STRAWBERRY
EDIBLE PORTION



BANANA
EDIBLE PORTION

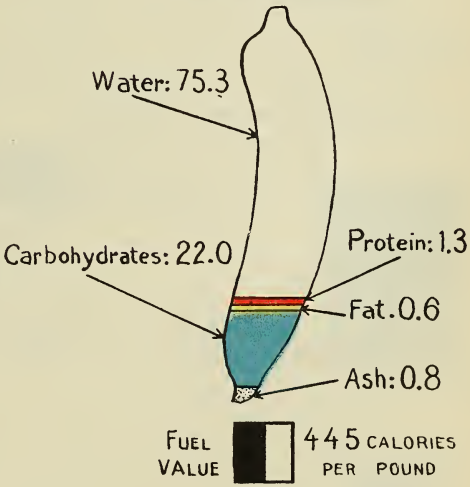


Chart 11—Fruit

Grapes have a greater food value and are nearly as popular as apples. Their carbohydrate content and their flavor make them both a food and a relish. Unfortunately, they are much more perishable than apples.

Raisins are dried grapes. They are concentrated food and in fuel value rank with dried figs and beans.

Canned fruit contains considerable water and is, therefore, not a rich food. Its food value is due to fruit sugar and the sugar added in canning. It is consumed in enormous quantities, ordinarily as a relish.

Fruit jelly on account of its high sugar content is a rich food. It is popularly considered a relish and when used as such only small amounts should be eaten.

Grape-juice has no appreciable food value. It is used as a relish on account of its flavor.

COMPOSITION OF FOOD MATERIALS.

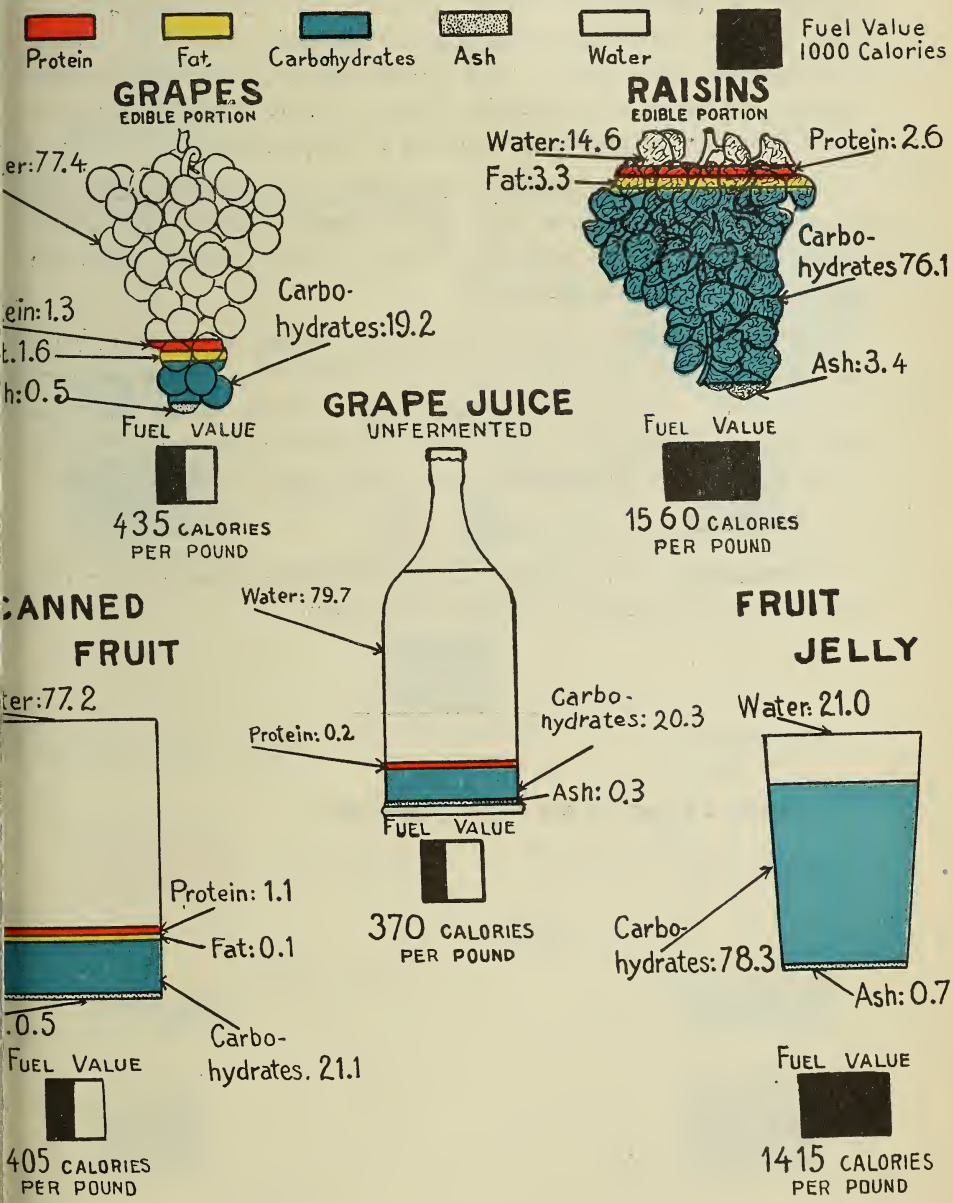


Chart 12—Fruit (Continued)

Nuts

Peanuts— The composition and food value of peanuts are probably a surprise to most people. Peanuts are among the richest and cheapest of our foods, although generally not considered a food. They contain considerable more protein than does meat. They resemble cheese in their high fat and protein content, while their carbohydrate percentage is considerably higher. Of the vegetables proteins, those contained in peanuts are among the most complete.

Peanut butter, as shown in the chart, contains less water and more fat than peanuts and, therefore, possesses a higher food value. When peanut butter is made by simply grinding peanuts it has the same food value as the latter.

Walnut kernels contain a considerable amount of the three components, especially fat. Their high food value is due to the presence of the latter. Like all other rich foods, walnuts should be eaten sparingly, otherwise they might cause digestive disturbances—which frequently lead people to believe that such foods are hard to digest.

Chestnuts are a starchy food.

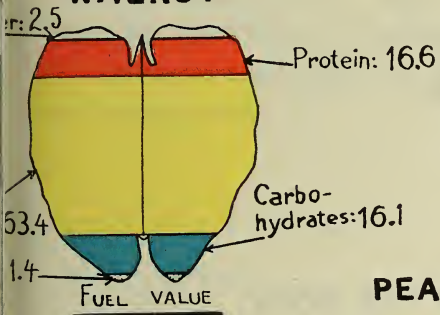
Cocoanut, dried, sometimes called shredded cocoanut, is a rich food, mainly on account of its high fat content.

Charts 14 and 15 are self-explanatory.

COMPOSITION OF FOOD MATERIALS.

Protein | Fat | Carbohydrates | Ash. | Water | Fuel Value 1000 Calories

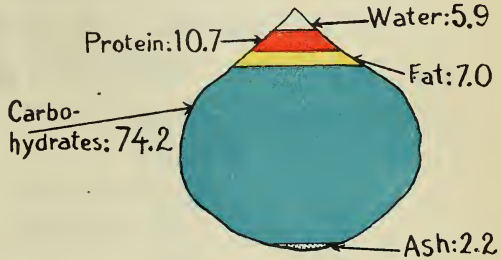
WALNUT



FUEL VALUE

3180 CALORIES PER POUND

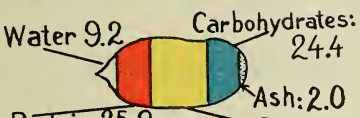
CHESTNUT



FUEL VALUE

1820 CALORIES PER POUND

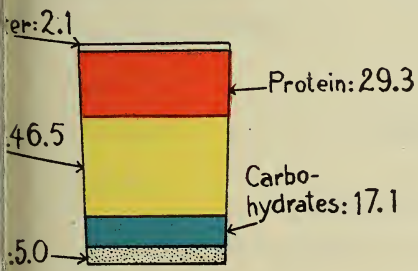
PEANUT



FUEL VALUE

2485 CALORIES PER POUND

PEANUT BUTTER

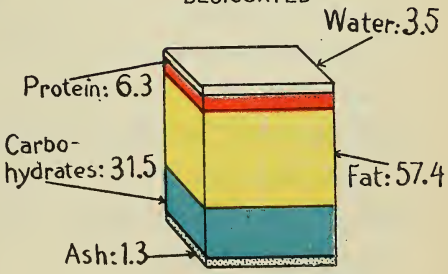


FUEL VALUE

2735 CALORIES PER POUND

COCOANUT

DESICCATED



FUEL VALUE

3025 CALORIES PER POUND

Chart 13—Nuts

FUNCTIONS AND USES OF FOOD.

CONSTITUENTS OF FOOD.

FOOD AS PURCHASED CONTAINS
- EDIBLE PORTION
  Flesh of meat, yolk and white of eggs, wheat flour, etc.
  - Water
  - Nutrients
    - Protein
    - Fats
    - Carbohydrates
    - Mineral Matter Or Ash
- REFUSE
  Bones, entrails, shells, bran, etc.

USE OF FOOD IN THE BODY.

PROTEIN---------- Builds and repairs tissue
White (albumen) of eggs, curd (casein) of milk, lean meat; gluten of wheat, etc.

FATS---------- Are stored as fat
Fat of meat, butter, olive oil, oils of corn and wheat, etc

CARBOHYDRATES---- Are transformed into fat
Sugar, starch, etc.

All serve as fuel to yield energy in the form of heat and muscular power.

MINERAL MATTER OR ASH--- Share in forming bone, assists in digestion, etc.
Phosphates of lime, potash, soda, etc.

Food is that which, taken into the body, builds tissue or yields energy.

Chart 14

DIETARY STANDARD FOR MAN IN FULL VIGOR AT MODERATE MUSCULAR WORK

	PROTEIN Grams	ENERGY Calories
Amount of food purchased . .	115	3800
Amount eaten	100	3500
Amount digested	95	3200

ESTIMATED AMOUNT OF MINERAL MATTER REQUIRED PER MAN PER DAY

	Grams		Grams
Phosphorus	1.5	Calcium	0.6
Sulphur	1.0	Magnesium . . .	0.24
Potassium	2.0	Iron	0.009
Sodium	3.7	Chlorin	7.0

Chart 15

Vitamins in Some Common Foods

For explanation of the terms "Fat soluble A," "Water soluble B," and "Water soluble C," see page —. The + sign means "present," the — sign "absent." Blank spaces indicate that no data are available or no experiments have been made. The (?) means "doubtful" or "conflicting data."

	Fat Soluble A	Water Soluble B	Water Soluble C
Apples	.....	.....	+
Bananas	+	+	?
Beans, green	.....	.....	++
Beef fat	++	.....	.....
Butter	+++	—	.....
Cabbage, fresh	++	+	+++
Cabbage, cooked	.....	+	+
Carrots, fresh, raw	+	+	+
Cod liver oil	+++	.....	.....
Cheese	+	.....	.....
Cream	++	.....	.....
Eggs	++	+++	?
Fish (fat)	++	?	.....
Lemons	.....	.....	+++
Lettuce	++	+	.....
Limes	.....	.....	++
Linseed	++	++	—
Meat, lean	+	+	+
Meat, liver, kidney, brain	++	++	.....
Milk, whole	++	+	+
Milk, skim	—	+	+
Milk, dried	+	+	?
Milk, boiled	.....	+	?
Mutton fat	++	.....	.....
Nuts	+	++	.....
Nut butters	+	.....	.....
Onions, cooked	.....	.....	+
Oranges	.....	.....	+++
Peanuts	+	.....	.....
Peas, dried	.....	.....	.....
Potatoes	.....	++	—
Raspberries	.....	.....	++
Spinach	++	+	.....
Tomatoes, canned	.....	.....	++
Yeast	.....	+++	.....

THE HISTORY OF PHILOSOPHY

CHAPTER I

That which we call philosophy, though it has retained from age to age some common motivation and content, has constantly modified its approaches, the universe of its discourse and its apparent intentions. Philosophy, like all human endeavors, has had a history; has evolved, suffering a constant series of changes—additions, subtractions, transformations, reinterpretations, creations. Problems and their solutions have arisen, been discussed, modified, dropped; been resurrected, found wanting in real significance and forgotten in the press of new issues and perplexities. But throughout the constant succession of such points of issue there has been a certain something common to all; a certain persistent problem, a certain persistent attitude and intention.

It is in part the purpose of this essay to show that the "common motivation" and the "persistent attitude" referred to above are educational in the true and significant sense of that term; that they have been directed, consciously or unconsciously, to the modification, standardization and betterment of society and the life activities of the men and women in it. It is contended, furthermore, that this educational meaning and intention of philosophy as contrasted with the historical "aloofness" which has at times apparently obscured its real nature, has for some time become more and more manifest to philosopher, student and the "man in the street" and that, finally, we have reached that point in the historic progression where we can quite definitely and practically both recognize the fundamental sense of the term "philosophy" as sociological and educational, and also point out with considerable accuracy the goal whither that education tends to bring us, ... the end which will be better than the beginning. "Philosophy," once wrote a student, "makes *exquisite* that which was heretofor merely implicit." This is no mean statement. For the presentation of this thesis it will be necessary, first, briefly to review the history of philosophy in the accepted sense of that term, indicating the underlying educational bias and intention; secondly, to examine somewhat critically some few of the age-old "problems" presented in that history, with a view to recasting them so that they more adequately express the educational basis which underlies, indeed, constitutes them; finally, to sketch, however inadequately, the framework of what, from the older point of view would be called a "philosophy

of education," but which, from the point of view here developed, is simply—a philosophy: a presentation, that is, of a goal for human endeavor and a means for attaining it. The argument, indeed, is hortatory at bottom, frankly so; and it points with envy to the record of the achievements of the sciences as examples of what real mobilization of thought will do. Philosophy, to be efficient, to be socially significant, to be indeed philosophy at all, must again become, in part at least and at bottom, a co-operative enterprise and activity; the ideal of the "lonely thinker" mapping out by brute force of word and phrase the nature, design and future of a universe he has never seen nor experienced must give place to the ideal of a devoted and well equipped band of explorers and discoverers, with a tried but not dogmatic technique, pooling their resources, their experiences and their finds, and handing down to their successors not a "final and complete system," not a diagram of a static world with all the wastes and oases plotted with exactness, but the sure and tried bases for further discoveries, further research, further creation.

If we survey that huge mass of story, myth, belief, ritual and social code which depicts for us the age of early human experience, before the reflective minds of systematizers had co-ordinated and compressed it, enticing from it a moral and a meaning that was perhaps put into it by their own reflections, we find it, after all, a not particularly unfamiliar field. It is, to be sure, primitive, but it is also essentially human—all-too-human. It reminds us, perhaps, of our own infantile and immature reactions to the complex world of human experience—or some one's else present reactions. Philosophy in the accepted sense it is certainly not, nor yet science; it is rather the material, the matrix from which both are to emerge, when times of comparative leisure and greater interest in and need for abstractions and generalizations permit. Experience was still, as it were, enjoyed per se, even when, in memory, older and crucial experiences were resurrected and relived, without the realization, at first, that such resurrected experiences were crucial or typical. No Aristotelian nor yet modern logic controlled the conclusions drawn from such crude experience—logic was not yet a subject of discourse nor a conscious discipline in thought. Rather, crude analogy, the seeing of some resemblances and the taking for granted of the rest; chance association whereby things joined in unique experiences became thereby joined everlastingly in memory; and, above all perhaps, the wish, the impulse, the inner urge, based on the very nature of the untutored individual—these were the catagories under which experience was directed, understood, lived, passed on.

As in the individual, so in the group, if it have but a sufficiently long development and growth, with accompanying multiplication of such legend and story, there comes a time when consolidation and co-ordination of the varying experiences of different individuals and different generations becomes possible, indeed, necessary in view of the accumulated total. With such consolidation goes modification, the picking out of the most frequent, the typical, the universal, and the compressing of the irregular to fit the type. It becomes, also, in the process, more than merely typical; it becomes representative of the experiences, the mode of living of the group; the individual by reason of a concrete typical experience lives the experience of the group. It becomes still more; the typical experience, generalized from many concrete experiences, becomes, in some sense, coercive; it shows not only what has happened to the members of the group, it shows also what should happen, it becomes a standard of good, of proper, of normal, of social behavior. It follows, still further, when the experiences of the group have crystallized into such standards, that some form of initiation is necessary for the growing generation which will eventually replace the elders; conscious, formal education in these matters becomes necessary. At this point, then, whether we call such elaboration of experience and such elementary control of group life thereby, philosophy, we do find associated with such reflective activity a definite effort to apply it; it is not woven merely for its own sake; the thinking and the thoughts are directed again to the modification of the medium whence they originally came—the concrete experience of the individual and the group. Philosophy is not merely for philosophy; it is for life.

Certainly the foregoing is not philosophy in the historical or usual sense of the term; in such activity there is too much of the impulsive for the modern fastidious ear, the too-fastidious ear, it may be; it is a product, as some critics see it, not of the mind, but the emotional nature of man; there is too much of humanity in it. The categories that have shaped it are not pure, they have been contaminated by the emotions, by those mechanisms which lead us to submissive behavior, which make us to act as others act because we are one of the crowd; the laws of thought have not operated without restraint; the unconscious has welled forth and been accepted, falsely, as wisdom. Some more disinterested effort and unbiassed product, it is held, is necessary, before we can call it philosophy; a survey, as it were, of experience which is not human experience, and yet has been lived through by human beings; a product which human beings have produced and which yet bears little or indeed no relation to their nature and the

world in which it lives. Philosophy must be, somehow, a product of but one side of the many sided being who produces it; reason alone, uncontaminated by all else must produce it. How this point of view has come to prevail, and how it is itself now subject to criticism and revision must needs be, it would appear, a fundamental investigation for a philosophy of education.

If we yield, however, to the criticism that no mere social coercion and selection of material makes it philosophic, even if it be granted to be educational, we need but survey the next stage in the elaboration of experience in order to find a nearer approach to that type of activity which would, in the usual and historical sense of the word be granted that character and distinction. And it is noteworthy that, in proportion as it becomes more philosophic in this critical sense of the term, it becomes, at one and the same time, more consciously and deliberately a matter of educational significance, also in the strictly critical sense of the term. Nor is all this speculation; it is not an *a priori* society surveyed in imagination from which we deduce whatever we would for the sake of a thesis; the field of history is the source of material and conclusions; written history, pictured history, and the whole mass of oral tradition set down at one time or another in concrete form. The history of philosophy is the background; a history beginning, too often, with the presentation of a philosophy full grown, as among the Greeks, with no question of or interest in earlier origins, earlier forms, earlier efforts. Yet the earlier history of the mainland of geographical Greece and of the islands between it and Egypt and Asia Minor, as well as the early history of the Jewish people, to take but two examples, exhibit stages prior to that of consolidation and unification and the attainment of a consciously social even if unstable point of view. As we pass from that early stage of first consolidation and the attainment of a generalized point of view which has coercive value, but which in the more critical sense of the term may perhaps not yet be called philosophic, we happen upon conflict; the first conflict, apparently, certainly in historic times the first, which has for field of dispute that which is under discussion here, namely, what is philosophy, what its nature, its method, its content, its justification, its function? It is an attempt, socially motivated, to determine or rather to redetermine the validity of the coercive standards which the earlier reflection had fastened upon society; an attempt to extract more exactly and more fittingly from the past experience of the group as well as its newer and fresher experiences that which had real value, real meaning and significance and which might take the place of the older standards. It is a conflict not dissimilar to that of the present period.

Some examination of the various contributing causes of this early conflict between what are, from the point of view of the present argument, rival schools of philosophy, may make the present situation and the meaning of the various current proposed reconstructions in philosophy clearer and bring out in sharper relief the fundamental educational implications of the situation both then and now. Greece, rather than Judea, will prove the more fruitful field for our investigation (though the same elements appear in the evolution of both societies), in that our philosophy is still in large measure a development of the issues there raised. One might note first the curious and significant fact that it was educational problems and educational purposes which raised the whole question of the worth of the older, more traditional, untested and unverified social theory and practice. The body of doctrine which had resulted from a fusion of Cretan culture with that of the incoming barbarian Greeks, (which fusion, had we the data, would undoubtedly reveal the same revision of thought as the period we have chosen), was no longer in accord with the actual living activity and experience of the group, as group and as individuals. How to live, how to believe, how to teach others to live and believe,—these were, as always, burning questions, but the older teachings no longer sufficed as a guide. Life of the period contradicted, only too clearly, the older teachings. The period of the Sophists in Greece marks the height of this effort at readjustment; the Sophists, themselves, being outstanding individuals to whom the old was no longer coercive, to whom the necessity for something new was preeminently clear. Much new knowledge had accumulated since the formal expression of past group experience had shaped itself, knowledge due, in part, to the influx of other cultures, representatives of other lands and beliefs, in part to travel, in part to increased leisure of the governing class, which itself was tremendously increased with the transition from tyranny to democracy, the product of the fifth century. More active participation in public affairs made possible the testing in concrete endeavor of the older precepts, and they were found wanting. New and unthought of issues arose in the adjustment of the individual to the group, new distinctions within experience were brought to light by concrete endeavor, and for many the older teachings were no solution and gave no counsel. The science or pseudoscience of the earlier cosmologists began to filter into the field of interest of the body politic and though it too was not altogether in accord with the experiences of the individual, it was another contributing cause to the dispersion of the older beliefs. Homer and Democritus could hardly both be true; comparison, analysis, experiment,

measurement with the fruits of concrete, individual experience, all these but paved the way for a new valuation, a new generalization, a new socially acceptable code of conduct and belief.

At this stage, surely, we have a real philosophy; but it is also a real educational program, for not merely a disinterested curiosity, not a mere impulse to 'know' a universe where such 'knowledge' was to be nothing but knowledge and have no practical import, can, in any sense, be read into the situation; it was, in the terms of the present argument, a conscious attempt at readjustment to a growing and changing society and environment, a readjustment in which that type of action and reaction we call thought was more pronounced than at earlier periods, or, better stated, one in which the type of thought or the character of the thinking was more nearly like that which we at present use in our official philosophy than had been the case in previous more primitive attempts of which we have any knowledge. The purpose of philosophy begins more clearly and more consciously to emerge, the purpose of evaluating and directing experience, of adjusting the propensities, the abilities, the impulses of the individual to the partly conflicting and partly cooperating tendencies of those with whom he is associated, and with the environment in which he lives; a purpose also apparent in more primitive attempts at a generalized glimpse of the world, and becoming ever more conscious and deliberate with the passing of time and the coming of the present era. Philosophy offers method, content and purpose, norms and values; is always didactic, and even when it turns from the apparent world of untutored human endeavor and offers proof of another world, better, nobler, truer, eternal, real, or what not—it is evangelistic, educational, seeks converts, endeavors to reorganize man and his experience. And the test of each such new philosophical redirection of experience is, as with the older and even primitive social codes, its ability to deal with the world of human endeavor, to make it more livable, more controllable, fuller of purposes that have significance for human beings, fuller of significant cooperative activity. Thus the history of philosophy is the record of rival claimants for control of the purposes and activities of human beings, a rivalry not yet settled in all respects, if indeed in any.

It may be worth while, at this point, to contrast some of the rival generalizations of the Greek period whence arise so many streams that flow on to the present day, in order to show some of the new influences entering into the formation of typical philosophical points of view, new educational theories. That the two main generalizations or systems of thought have been called theologies by some of

the writers in the field but emphasizes the same point; they were rival ways of life and living, constructed from contrasting survivals of earlier and more primitive thought, evaluating as supreme different elements in the social and individual career, but agreed in their insistence on a life lived in accordance with them. The one, developing from the earlier Ionic tradition, and carrying the speculations of the Cosmologists to their apparently necessary conclusions, becomes thoroughly mechanistic, discards underlying animistic essences and spirits, reduces both mind and matter to the movements of atoms, makes the soul itself atomistic and discards the conceptions of God, providence, immortality, another or a better world, salvation, or redemption; it is thoroughly mechanical and determined. As a practical corollary, educational in significance, it advocates attention to the processes and the values of this world, here and now, and seeks only to know what are the best of such processes and values for the individual and the group. Democritus' discussion of the nature of custom and the reasons for preferring one mode of conduct to another is a significant contribution of this first general application of philosophy to the social order; it is clearly a code of conduct in terms of philosophical speculation and carries with it an educational implication for those allied with him. That happiness is the supreme good, the thing for which all should strive, that only some can attain to it because only the gifted are able to acquire the knowledge, the insight, the point of view on which its attainment depends—these are some of the educational implications. That no school, in the modern sense, nor board of education set itself the task of organizing a curriculum and training teachers to carry out such ideals and purposes is apart from the point at issue, namely, that the results of the generalization of experience were normative both for the individual and the group, insofar as each was able to apprehend the issues involved; it was, in a sense, a first presentation of an educational creed that was, in later times, to be more emphatically presented. That it tended, at times, to emphasize the individual or a group of selected and superior individuals makes it not the less educational, but indicates a bias in the direction of one type of education, the individualistic, without, at the same time, losing or neglecting its dependence on the social body for origin. Though all men might not become formed by the theory, yet all men and the experience of all men had gone to form it. Contrasted with this relatively mechanistic philosophy there arose, side by side with it and developing with it throughout the same period, another type of philosophical generalization and educational theory, the "otherworldly." Here was no insistence on the value of the world of present experience nor advocacy of the search for happiness, were

such happiness ever so intellectual, but rather a turning away from the scene of the play of the senses and a search for the ultimately true, the eternal, God, the home of the soul, another world in which all the appearances of this will be replaced with final and imutable reality. Music and mathematics were valid objects of attention in that they purified the soul and made its progress toward its ultimate goal more certain and more rapid, so also interest in form, as an associated phenomenon, is justified; matter is subordinated. The soul has sinned, has fallen, and only a process of education will win for it again its old estate, free it of the error and dross of its temporary earthly experience, which is in no sense essential for it, but is conditioned only because of its fall from grace. Here again is a generalization from experience albeit an inner experience, and here again is the insistence on conduct in accordance with it; no mere search for the truth or the desire for static contemplation of it moved the mystic in his pholisophizing; life was all too apparently wrong and his was the search for a new and final criterion whereby it might be reconstructed—nearer to the heart's desire, yes—but nearer to the heart of things, too.

In this preliminary sketch, as has already been indicated in the preface, the interpretation of philosophy proper in the terms of educational theory can be merely outlined; hence many significant names of the Greek period must be, for the time being, omitted, and their educational creeds represented, as it were, by such typical generalizations as have already been given. But no treatment, however, shortened, would be at all representative without a consideration of Socrates, Plato and Aristotle, and an enumeration of some of their educational teachings. "The problem of the (Greek) Educational Theorists was identical with the problems in ethics and in philosophy, the solution of which was attempted by the same philosophers. The old moral bonds being rejected, the problem was to discover or construct new ones; the old philosophy being invalidated, there arose the obligation to originate a new one; the old educational aim of developing that worth of the individual demanded by the institutional life no longer being recognized, there existed the necessity of formulating new conceptions of worth or of virtue, primarily providing for individuality but at the same time recognizing some moral bonds relating the individual to his fellows."* Growth of matter-of-fact knowledge, the rise of concrete techniques, the interpenetration of other cultures and attitudes had destroyed, for the time being and until a renaissance of later times was to resurrect some part of their content,

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*Monroe, Paul, A Text-Book in the History of Education.

the older institutions and the rituals and conduct in accordance with them.

The quotation above, while it is applied particularly to the situation in Greece, illustrates a constant phenomenon in the course of history, and while this inherent and essential purpose of philosophy has been a constant and pre-eminent factor in all philosophical productions, its presence has been, at times, concealed by the insistence on certain problems of method, limits, ultimate goals. In particular, the problem of knowledge, the age-old quarrel of epistemology, arose and came to be a point of general interest and concern to those who through profession or inclination devoted themselves to the social difficulties of the period. Here we come upon one of those central problems within the general field of philosophy which, while apparently a difficulty in the argument that the purpose of philosophy is educational and socially coercive, is, upon further analysis but a final proof of the point at issue. Its detailed analysis is deferred to the following chapter where, in company with other such crucial and long-lived philosophical centers of interest, it is subjected in more detail to examination in the light of educational theory and practice. But its central significance is clear; we may know only what we may know, and coming to a knowledge of what we may know and how we may come to do so, it becomes immediately obvious that only such things may be taught, only a knowledge of such things is worth while. How is knowledge achieved, how spread—through words or through doing, through the senses or through remembering a past state of the soul? Are the senses deceptive? If so, then it is emphatically the province of such a philosophical creed to evangelize the community, to convert one and all from a false search for knowledge, happiness, the good, the true, the beautiful which have wrongly been thought to depend on the functioning of the organs of the body, and direct individual and group to the newer method for the attainment of certainty and reality.

In the teachings of Socrates, Plato and Aristotle this problem is a central one; the Socratic sayings, "Man is the measure of all things," "Know thyself", "Knowledge is virtue", as well as the Socratic method, the maieutics and dialectic are early and simple formulations of this problem, differing greatly from that of Democritus as well as those of the earlier Cosmological schools. The educational results are obvious; a greater emphasis on knowledge and on the insight of the individual, but a knowledge and an insight directed to moral and social ends and purposes; for the "man" who was, in Socratic thought the "measure", was the universal man. This was,

at times, misleading, for the method of gaining knowledge that had universal utility and social meaning depended, ultimately, on the concrete experiences of the individual, and where such experiences were lacking the resultant "knowledge" acquired by "dialectic" was purely formal. With Plato and with Aristotle the same problems occupy the foreground, subtly changed, more consciously seen as problems, and with the educational implications more objectively worked out. Knowledge, to be sure, is still with Plato both virtue and also "whole-thoughts" as opposed to mere opinions, but it becomes more definitely mental, ideational, less flexible, less of a summarized and coordinated mass of experience of a living and actively experiencing individual; it is, at times, "memory", memory of an earlier state of the soul when its traffic was with reality and not with the everyday world of deception. The aristocrats of the world are those who remember best; who see, through the appearances of this world, the glimpses of an eternal, immutable and perfect reality; they, too, are the best teachers, the best fitted to solve, even to truly approach with understanding, the problems of a worldly society. The educational scheme of the Republic, as well as the later more reactionary scheme of the Laws are concrete embodiments of the underlying theory of reality; that they are psychologically not always sound, that they are politically not always democratic, that they are philosophically the result of a generalization from too few factors in the wide realm of human experience does not affect the fact that the purpose of his philosophy was social control; it was an educational system designed to modify, transform and redirect human endeavor and human nature.

With Aristotle the same general attack shifts to the "will"; virtue is not mere knowledge or insight, but a state of the will, and it is the business of the philosopher, who is also, as in the systems of his predecessors, a statesman, to direct and guide society in accordance with this general principle. But not formal dialectic is to supply the material for the guidance of society; rather the experience of the race, examined in the light of reason both inductive and deductive, as well as the objective facts of the surrounding environment, and, above all, the biological nature of human beings, considered as a touchstone for all moral codes. The aristocratic attitude disappears; education is for all citizens (male); it is both practical and theoretical, dealing with objects both of immediate and transitory interest as well as with more noble and permanent ends to which the others are in part preparatory; it concerns the body, the passions and the (rational) soul. Following Plato, in part, a curriculum is sketched out, leading from gymnastics through music and literature to the sciences and philosophy. One

other fact requires mention; with Plato and Aristotle there may be said to begin a definite stream of educational theory consciously considered and deliberately conceived as a system of thought; the educational function and purpose of philosophy for a time becomes explicit, its directive and coercive aspects deliberately exhibited and concrete recommendations made both for subject matter, method and the ideal to be sought for; but it is also to be noted that this explicit and conscious recognition of the educational purpose of philosophy becomes less definite as the culture and civilization of the period begin to disintegrate. With the intrusion of new racial elements, new religious beliefs and rituals, new techniques and matter-of-fact knowledge, the barely solved problem of the Greek period is again at issue—what, namely, of all these conflicting principles and generalities is true, is good, is worthy? The educational purpose of philosophy remains as a core, but becomes less of an avowed and acknowledged aim; in the rivalry of conflicting educational theories interest becomes centered upon the survival of the values with which each rival group is identified; a homogeneous society, since it is not a fact, seems, somehow, not to be desirable, and the directive function of philosophy becomes, for a time, translated into a bitter struggle for the survival of conflicting values. That evangelical activity continues, however, is evident, for with the passing of time it is that system of thought and action which wins most converts which ultimately comes to inherit the largest field of endeavor, and to work out again, explicitly and deliberately a new code for the regulation of human conduct. This varying awareness of the purpose of philosophy is, quite evidently, characteristic of the whole history of the subject.

In this brief treatment only the larger manifestations of the dominant purpose of philosophy can be considered, so, while the period of the early rival schools in Greece with the consequent emphasis now on eristic, now on dialectic are, educationally, of considerable importance, our main purpose will best be served by a summary treatment of the Roman period, leading to a larger and more detailed consideration of the Middle Ages, in their inception and development. In contrast with Greek leanings toward the aesthetic and the intellectual, in an emphatic sense, we find the Roman in his judgments and standards inclining towards the useful, the effective in a worldly and concrete sense, the significant from an institutional point of view, the good in so far as it furthered the conduct of life, here and now. His consequent philosophy in the narrower sense, as well as his culture in a broader sense was a working over and a stabilization, temporary and partial, of the Greek aims and ideals; purely tentative philosophic

generalizations were worked out into definite codes of life; diverse and contradictory elements of experience became, somehow, unified, as witness the Roman law, with its all-inclusive origin and its universal coercive power. Always, in its earlier manifestations, the Roman spirit was moral, and to be moral, whatever the source of the principles which determine the content which is called moral, is to be coercive, educational. If, with the approach to the modern era, such moral quality is apparently lacking to the race and its empire as a whole, still the predominant characteristic of the people shows all the more clearly in those select groups who gathered around such men as Epicurus, Zeno of Citium, and the Neo-platonics, and who preached a new way of life; a way of life both for state and individual. If, further, we find in the bearing of such groups, in their intercourse with the world and their evaluation of experience, something of what we might call pessimism, distaste for the normal, a world-weariness, a longing to withdraw from the activities of human institutional routine and habit, it is, again, balanced by a later more world-loving and world-saving attitude. It is, even in its most eccentric forms, but a manifestation of the growing complexity of the world of human affairs, of the growing human perplexity when faced by such a multitude of conflicting generalizations, both revealed and man-made, a manifestation of the desire for a simpler, a saner, a more decisive solution of the problems of existence; a protest, as it were, for a reconsideration of all things and a reframing of society in accord with them. It calls for a new philosophy and a new world made in its image; nor is the need a unique phenomenon of the period under consideration; it is but a recrudescence of the problem of the Sophists, a forerunner of the dreams of many another period, a rich and enlightening background for an understanding and the solution, though not in their terms, of the problems and difficulties of modern philosophic and educational quarrels. It is also noteworthy that the growing complexity of the world of human endeavor is reflected in the growing diversity of the source from which proceed doctrines of the new salvation, the new way of life, the new generalizations which are at one and the same time philosophical and educational; Persian, Greek, Semite, Egyptian, Roman—one and all, and many another too, contribute to modify that current of events which was, eventually, to lead to an all-inclusive or all but all-inclusive attitude toward the world and life in it. Though they speak one tongue, Greek, they think in incommensurable terms—soul, matter, salvation, happiness. The whole field of previous endeavor, the whole system of the development of Greek thought—Socrates, Plato, Aristotle and the others—is worked

over and emerges in new forms, with new meaning made clear, older emphases subtly changed, but with the essential purpose unaltered; the philosopher becomes, perhaps, more of a prophet and deliverer, but remains still philosopher, statesman and educator.

But the Epicurian, the Stoic, the Skeptic and the Neo-platonist agree in at least one characteristic that is worthy of some consideration, a turning aside, namely, from the objective world of science and a concentration on an inner world of apparently greater surety, greater value, and fuller completeness. Whether we follow the Epicurian in his insistence on the finality and reality of refined pleasure and justify it by the cosmology of Democritus, or, with the Stoic hearken to the voice of the World-reason and desire only what God desires, seeking its eternal expression in the consensus gentium, or, with the Skeptic seek merely to preserve a certain poise and complacency in the face of all experience, hoping nothing, fearing nothing but calmly accepting all, or finally, turning to the ancient mystic tradition of the Drama of the Soul, we reject this world as evil, illusory, ephemeral, and construct a new Platonism, despising and turning away from the concrete world of human affairs—in each case we have, quite evidently, despaired of the world, taken up thought against it to destroy it, to evade it, to deny it. There is, in such thought, however we evaluate it, nothing of the heroic; however much we believe it, we can hardly, partisan as we may be, call it constructive; it is a failure of human enterprise, an acknowledgment of human insufficiency in the struggle with the environment in which it has found itself; however glorious, however idealistic, however orderly and sober, it is a bitter and total retreat. Problems, in place of being solved, are let be; difficulties in the understanding of human affairs are ignored and their significance swallowed up in the term "illusion"; life and living becomes confessedly too arduous, and becoming so first for the few, the elite, for those who supposedly best understand the possibilities of a solution, they become so finally for those whom the few can convert to their creed. Philosophy in turning its interests inward to immaterial matters, in becoming less dynamic and less reconstructive of the external form of society and its environment becomes not the less evangelistic; its purpose is still to offer to one and all the best way of life, albeit the best way has become an acknowledgment of defeat. One needs but contrast this with the earlier purposes of Socrates, of Plato and of Aristotle to sense its tremendous difference; once the world had seemed the fair field for the activity of thought, and that thought was to re-make, nearer both to the impulses of the heart and the dictates of the reason, what was, in its essence,

worth reforming, in its inner nature mouldable, in its final outcome under the control of the united activity of the philosopher and his converts. It is a long time before history again swings to this older faith and optimism and philosophy becomes once again a tool for the conquest and organization of the world of human experience. It is, again, quite apparent what effects such philosophical generalizations would have upon the material and the method of education; concrete endeavors become disciplinary, valuable insofar as they minister to the ends already set up by the philosophy in question; motivation is in terms of ultimate use; original nature, even in the Aristotelian sense of the phrase, is ignored; all life and living is but a gateway—to God or to oblivion, and the happiest man is he whose passage is swiftest, whose stay here is briefest.

It is apparent, first, that such doctrine is disintegrative of society and prone to the emphasis of the individual; secondly, that the mere fact of the actual existence of society to the present era is the proof of the gradual emergence of some corrective to these views. The Middle Ages are the scene and the period of transformation, of the working over of the inheritance of the Classic period into something, in its final formulation, more essentially societal, democratic, dynamic, progressive. Christianity, whether it be considered as the synthesis of competing and similar Oriental and Hellenistic religious cults and creeds or whether it be taken as a new revelation per se, or as an importation of Jewish thought, is in any case a reaction to the philosophical schools of the period. While it still emphasizes the unique value of the individual, it equally emphasizes the real identity of the individual and the group of which he is a member; an approach is made to that analysis of society which sees that the term individual and society have no real significance or content apart from one another, that they are but complementary ways of viewing the single indissoluable situation—a group of people engaging in cooperative activity. Christianity was more essentially democratic, less peculiarly intellectual and though, at first, it also was a species of retreat from the world, it came, in time, to once more include the world in its sphere of activity. Thus the two emphases of Christianity arose; the one more orthodox and ascetic, mystical and retiring; the other more ethical in the social sense, emphasizing the redemption of the actual world and the founding of God's kingdom here.

In the foregoing, the emphasis in the main has been on logical, intellectual and presumably precise methods of obtaining insight into the real nature of those principles which govern or should govern the conduct of man. Whether this emphasis was due to the over-

valuation of a trait seemingly rare in primitive communities, (the ability, namely, to think of many things at one time, to compare, analyse and abstract), or to an heroic attempt to apply to wider fields of experience a technique that had proven of value in concrete affairs, or to the attempt to enforce conclusions about the world that had, before the fact, neither the approval of the great majority nor significance in their own experience, in any case, an unprecedented emphasis had been laid on method, logical form and organization in order to confuse and yet attract the dubious. That man, as man, has a propensity to that kind of manipulation of the environment and his own situation in it which is called thinking, that thinking is a mode of adaptation arising in the developing organism which has gone through a long series of parallel and concomitant increases of complexity of structure and function—all this is quite evident. Yet that man in the general sense, or men in the individual sense should believe on the basis of "reason" that which daily experience of the most convincing sort clearly and emphatically contradicts, is itself not only a problem but the key to the understanding of other problems. If complete description is explanation, as science would have it, then the fact as fact is a partial explanation, and it is a fact that the history of philosophy, both in those periods already outlined as well as in many another has shown a leaning toward and a faith in purely formal explanation and logical organization. Yet, as an explanation of the apparent aloofness of philosophy, as an explanation of the constant but false assertion that "philosophy works no changes in the world", this abstract and logical shape which it has at times assumed is sufficient; philosophy has "worked" in spite of its formal systems, but as identified with that formality philosophy has received little credit for its works.

The early Middle Ages are remarkable for a revulsion from such severe intellectual and logical standards and methods; the aristocracy of the intellect yields to the democracy of the moral nature; all men, it was taught, might not be able to think alike, but all could feel and act alike; intellectual expression required long training, leisure, special gifts, while the expression of the moral nature needed only the common human nature inherited and possessed by all. This itself, of course, was an intellectual theory, based on no investigation, but generalized from a complex of hopes, dogmas, traditions and purposes; nor did history justify the naming of the expression of the moral nature "democratic"; it, too, had its aristocrats and the saint became the touchstone of the new excellence even as the philosopher had been of the old. But this early intention of Christianity soon broadened

and softened into a compromise; the early hostility to culture, learning and philosophy in the narrow sense of the word changed to an effort to conquer by assimilation; Christianity came to defend itself by the use of the very things it had at first despised and ignored. The cries of "credo quia absurdum", and "credo ut intelligam" ceased to ring with finality, and in the effort to adapt itself to a changing and growing environment Christianity adopted the spoils of the Classic world and the new theology became a new philosophy. Thus only could the new agency of social control present itself before the higher classes with whom there remained some tradition of the schools; thus only could the spread of heresies be checked, for the combatting of heresies necessitated some system, some organization, some logical standard, and thus only, too, could the highly endowed, intellectually, be either converted or held when once brought within the fold. Finally, it soon became apparent that the concept of the moral nature of man was insufficient; many are the ways in which moral nature might and did express itself, nor were all of them Christian; hence again, in order that the new generalization, the new vision of the saving of society, the new coercive regulation of society, might be efficient, educational work became necessary. In place of the older schools of the philosophers there arose the new schools of the Church, (though the Christian life was itself a schooling); with the growth of self-consciousness and the development of precise purposes and propaganda, special and definite evangelistic work was needed, and the solution, at first, was embodied in the catechumenal, the catechetical, the episcopal and cathedral schools, leading, eventually, to more permanent institutions. Monasticism, disciplinary education, a definite curriculum and a certain social purpose are inseparable in history.

But this acceptance of the content of the early Classical thought was neither complete nor impartial nor did it indicate that the method of the older thought was also accepted; rather a selection was made of just those arguments and dogmas which most clearly fitted in with the mystical and intuitional theology of the period, and, being thus chosen, they were at once placed in a position of authority; to accept was orthodox; to doubt, to ponder, to change, was heretical. This is philosophy becoming educational at second remove; the thought of the Greeks becomes again, in part, a guiding and coercive influence in society, but their vitality, their suggestiveness, their original inherent propensity to grow and change in the course of discussion and consideration—all this is gone. Nor is this to be wondered at; the Middle Ages are well considered, particularly in the few centuries immediately after the intrusion and infiltration of the Northern peoples,

a period of racial and continental education; a period in which the old must needs be first assimilated before the new could be created; a period in which the imported and differing culture and tradition of an incoming and conquering people must be compared, dissected and reorganized together with the old into a new social creed. The point of view becomes for a time thoroughly pre-scientific, animistic in the primitive sense; the confusion of thought in which politics, religion, law and social and industrial institutions and customs are merged in a pseudo-unified concept of theology, differs radically from the true unity of the Periclean Age, when all things were one and yet were all things. The new unity, the new philosophy is the very problem to be worked out, though with its final attainment there arises a rival to again undo the result.

What is variously called medieval thought and the "medieval mind" demands some consideration, for it is a peculiarly intricate example of the fusion of old tradition and new dogma, a peculiarly insistent attempt to both think the true and to live in accord with it, a long and varying effort to derive permanent and absolutely coercive standards in a continuously and rapidly varying field of experience. Philosophers are emphatically educators, though a new hierarchy of saints and scholastics replaces the intellectualists and theoreticians of the Republic; mind is yet supreme, but a new type of mind; ideals and ideas still beckon society onward to its consummation, but the source of their validity is no longer introspection or the reviving memory of the older period, but a new revelation, a new synthesis. The fusion of the old and the new is exemplified in what are called the "compilations" of the philosophers of this period; childish and unsystematic recordings of unconnected and inconsequential facts or pseudo-facts of the pagan writings; an attitude of wonderment, quite apparent at times, turning occasionally and with the passing of time more and more frequently, into real interest and active research in the same and kindred fields. But the point to be particularly noted is that the compilations are for the sake of understanding the present, for the proving by the record of the past the truth of the present, and even the faint appearance of that present in the past, in the way of hints, foreshadowings, faint anticipations; the past, properly interpreted, becomes a new proof of the truth of the new and the new thereby more strongly intrenched in a coercive and regulative position. The new philosophy must needs educate society, but the process of so doing was itself educative of the new philosophy; the field of experience to be surveyed grows larger and larger, deeper and deeper with time and with research; the process whereby Greek speculation

became what we proudly point to as the philosophy of the great Systematizers, holding within its sweep the experience of many peoples and many cultures, is repeated. The history of the Medieval period becomes a record of almost unconscious growth breaking out, finally, into a clear understanding of its limitations, and developing, at the last, into a New Method and a New Knowledge.

On the almost purely theoretical side the Monasteries, the Seven Liberal Arts so closely associated with them and their teaching, Capella, Boethius, Isidore, Cassiodorus, Alcuin, Maurus and Erigena are examples both of philosophy and education; on the more practical side, the institutions of chivalry and the early guild schools are an effort to work over the construction of society and to make clear the respective functions of the individual and the group in which he lives; scholasticism and the universities growing out of it represent a still larger effort, more enthusiastic, deliberate, far reaching, and withal more aware of the difficulties and the problems involved. Scholasticism is the final attempt to *officially* reconcile the old and the new, the intuitional and the logical, the dogmatic and the rational; the necessity of the early days of Christianity for a systematic presentation of faith and dogma was doubly felt; the conflicting tendencies of faith and reason had again become apparent, and scholasticism was the answer, was that whose purpose was to show the inherent and underlying identity of the two, to completely and finally unify all experience.

One subject of Medieval interest and dispute, outweighing seemingly more necessary questions, but eminently germane to the practical and concrete organization of thought and deed, was that between the realists and the nominalists. Here was an inherited problem, or at least a reframing of inherited points of view; Plato as against Aristotle, though the direct connection of Aristotle with the heretical nominalism was not known at the time of the early formulation of the problem. Realism, the doctrine that the substance is the real, that substance can change its attributes and yet be the same substance, that the real can assume many appearances and yet be the same real, was a very necessary rationalization of dogmas of the faith; it gave support to historical beliefs, to social and societal obligations and denied the evidence of the daily experience of the unlearned and heretical. It directed, as a major attitude and all-important belief, the organization of thought both in the abstract and even in dealing with quite concrete matters; it limited, as a necessary pre-supposition, the very direction which thought and research might take, and, in its highly extended field of domination, saw to it that all reports were in its own terms. The search for the essence, the neglect of attributes, the

denominating of the individual as "unsubstantial", merely temporal and quite unworthy of acute and philosophical analysis or concern, all this mitigated against true understanding of such phenomena as "society", "nation", "law", as well as directing scientific curiosity and interest into unfruitful paths. The nominalist, to be sure, was opposed to this view; but the nominalist was a heretic. Logic, understood as the rigid, formal, deductive Aristotelian method of organization of subject matter was also of concrete as well as of theoretical import; the logical as opposed to the psychological, the presentation from and in terms of first principles as opposed to the attainment of them by individual and concrete experience, the preference for purely formal organization over active constructive manipulation of material—this set both a standard for the centuries immediately succeeding as well as limiting the discoveries and interpretations of the period. Its influence is seen not only in the treatment of the process of education of the period, but in a certain unyielding deference to it still, here and there, existing; logic, pure logic, is the very picture of the mind—hence, so ran the belief, let it but contemplate only that which is logical in arrangement and it will be logical in all matters. The desire to be rational and convincing at the expense of free experience, the passion to uphold the transcendental through control of the content and method of education is, indeed, far removed from the spirit of the times which counseled, "let us follow the argument whithersoever it leads", but it is equally called "philosophy" and it is equally "educational theory", and no understanding of present problems and attitudes, whether in the field called philosophy or in that called education can neglect the consideration of the period of the domination of scholasticism, covering roughly, as it did, the centuries from 1000 A. D. to the Renaissance. That all thinkers of this period were realists is not true; Roscellinus, late in the eleventh century, Abelard in beginning of the twelfth, William of Occam in the fourteenth, and many another opposed the orthodox view; but the fact to be noted is that it was the orthodox view which they opposed, the view which dominated all thought in the official sense, all teaching, all propaganda, all social relations. When the view ceases to be universal, when the heretical is also orthodox, the Reformation is already at hand; as the culture of the Classical period comes more nearly to be appreciated at its real worth, as the ideas of the pagan philosophers are sufficiently worked over to be once more tentatively applied to society, as reflection and spstematization begin to give way to more active experimentation and a more careful scrutiny of actual experience, the period of the reign of dominant scholasticism comes gradually to a

close. The resulting dualism of church and society, of religion and experience, of thought and concrete activity, a dualism that was solved, in some sense, in Greek times, will be considered in a following chapter.

One other institution of the Middle Ages must be considered, in even so brief a sketch as the present—the Universities, at one and the same time the preservers of orthodoxy, the champions of the established and the source of the new and heretical. Interest in dialectic and the defense of the position of the church thereby led, early in the period under discussion, to their formation; but, whether they are called schools in the sense of the philosophic schools of the Greek and Roman periods, or schools in the modern sense of the term, their intention is evident; they are institutions for the control of society and its culture through a study and application of the truth—the revealed truth organized and systematized as scholasticism. That their development is parallel with the development of new interests, that as their power and number increased the dualism of church and society became more apparent, that they championed a democratic attitude and structure as against a central and absolutistic domination, that freedom of discussion both of secular and sacred matters found in them its first opportunity—all this is significant from the point of view here being developed; the universities were both places for philosophic study and yet also sources of far-reaching change not merely in thought but in practice, not only in theology but in politics and social structure. New centers developed from the first, as students, in turn, became teachers; new implications of old doctrines became apparent; new privileges became recognized, freedom of opinion and expression had a beginning; the intellectual and rational began to dominate and replace the purely theological, still authoritative, to be sure, but with wider interests and greater possibilities; in short, the universities were an intensive institution for that re-working of the inherited cultures which dominated the age.

That which we call, at times the Renaissance, at times the Age of Discovery, vague though it is in both inception and culmination, is the flowering of the awakening and expanding spirit of the Middle Ages; we may trace its first faint beginnings as far back as the twelfth century; its end, in any significant sense, is not yet come, for, while the direction of effort and the motivation of research have, in part, changed, we still are a forward-looking and out-reaching society. We might trace a vague and fanciful likeness to the Cosmological period of Greece in the early results of the Age of Discovery, its geographical fruits, its interest in the nature of the world and the make-up of the Universe, an interest directed to larger and more objective aspects,

to be sure, but still an environmental interest in the main, while, as the Age matures, and we approach more modern times, the interests and motives resemble more those of the Anthropologists, again with a difference, but with an abiding similarity. This is true not only of the philosopher, but of the man of affairs and the mere dweller in the world, intent mainly on making the most of existence; philosophical and societal interests, complementary and mutually interactive, sway together from center to center as they develop through the centuries. But the rhythm is both broader and longer; society is larger, its universe of discourse, its inherited culture, its aims and purposes infinitely more detailed and heterogeneous; the unity of civilization, apparent in both the Classical period and in the Middle Ages is no longer demonstrable; a striving for unity, perhaps, a hope of some basis of cooperation, may be shown, but the actual unity of consistent purpose is rather a problem for the Age to solve than a characteristic to be pointed out. The philosophers, like the geographers in their journeys of discovery found, indeed, many new lands, many yet unexplored and uncharted regions, and true to the inherent nature of the calling they followed, sought for settlers, for converts, for a society founded on the principles of their new discoveries; philosophy, in becoming new, still retained the character, at bottom, of the old. As with the Greeks, we may fittingly ask the cause of the new interests, the impulse to new philosophies; as with the Greeks we may again answer with mere description; the Moors, the Crusades, the Arabs and the Greeks; the growth of new tolerance and new love for the writings of the Greeks and Romans; the effect of early impulses toward nationalism; increase of wealth, capital, economic independence; the intensive study of the practical arts and their technique; the discoveries, already referred to, of new lands, new customs and new peoples; the new chemistry, physics, astronomy, medicine; all these, with accumulating effect, as the centuries went by, both gave new material for thought, raised entirely new problems, stilled old ones, furnished new solutions to problems long thought settled, and gave, finally, a new method. Thus it was, as experience, both individual and social, widened, the interpretation of it could no longer be restrained within the old bonds; as experience broadened, so too, philosophy broadened, in intention, if not in deed. To control a new age a new philosophy was formed, tested for its worth in the new society, and found wanting just in proportion as it aped the older efforts to be too systematic, too conservative, too rational in terms of purely speculative standards, too restrictive of still further efforts at expansion and development. For it was the indeterminate character of the dis-

coveries of the age which philosophy, at times, neglected; an indeterminate character in that the first acquaintance with the new did not disclose all the possibilities latent within it,and precluding, just because of this, any too final classification, any too logical or stereotyped disposal of it. The Medieval philosophy had been a closed system; perfect now and forever; the new age asked for greater freedom, for a system of thought capable of continual modification in detail while persevering in its unique direction—further discovery.

The new interest in the past, in the by-gone culture of Greece and Rome was shown not only in a revived study of the classic writings and a search for hitherto unknown manuscripts, but also properly enough, in an attempt to reorganize life in terms of the educational and social ideas of the period they were studying and reconstructing in thought. Concrete reality again shadowed, in intention at least, a by-gone world of thought and philosophy; current definitions of education in the period under discussion paralleled and even duplicated the definitions of Plato, Aristotle and some of the Romans, and the great men of the Classic world were consciously chosen as models for the perfect citizen. The correlation is worth noting well; it is a curious example of the thesis at issue, that thought in the highest and apparently most disinterested sense is, none the less, always and everywhere, not in and for itself but for the sake of the group and its activities, for the sake of the reorganization of existing institutions or for the creation of new ones to replace or supplement the old. There are hints, too, of a point of view later expressed by Bacon; Wimpfeling, for example, writes, "Of what use are all the books in the world, the most learned writings, the most profound research, if they minister only to the vainglory of their authors, and do not, or cannot, advance the good of mankind?"* Nor were the representative educators of the period unaware of the relation between philosophy and education; Vergerius, professor at Padua, wrote toward the end of the fourteenth century,, "We call those studies liberal which are worthy of a free man; those studies by which we attain and practice virtue and wisdom", and meant by such studies philosophy, letters and the ancient culture.* Pope Pius II, in his tractate, The Liberal Education, published in 1475, is even more explicit; education in his exposition is made equivalent to character, and character is to be obtained through the study of philosophy, letters and the effects of religion. To the modern mind this identification of education with knowledge, however high or abstract in content it may be, is not acceptable, but it characterizes the period under discussion. To be

*See Monroe, as above.

sure there is a general revaluation of the physical element in education, largely under the influence of the attitude of the Classical period, and a fairly common emphasis on the ability to be virtuous, to live a model life, to embody in practice the maxims learned in study, but it is not apparent in all the writings of the time, and is frequently lost sight of entirely in such movements as Ciceronianism, a purely formal worship of the content and style of Cicero.

If by the Reformation we understand the expression of the general period of discovery and expansion as it spread North and developed local characteristics more in keeping with the general nature and social organization of the Northerners, much of the above discussion will hold true for it; several traits need, however, special consideration. The South had been more nearly concerned with the classic culture and was individualistic in its attitude, aristocratic and formal; the North developed rather along the lines of social and religious interests, and was correspondingly more democratic and popular. In the effort to reorganize both concrete living and also abstract religion, both a new philosophy and a new education were developed, partly by one and the same man, Luther, and partly by co-operating and coordinating streams of thought proceeding from several different sources. The influence of the very pronounced racial characteristics of the Teutonic groups are evident in the different framing of problems as contrasted with the South, as well as in the differing solutions reached, all on the basis of a quite similar inheritance from classic and medieval times. The definite influence of their own ancient culture and native bent is shown in their reaction to the situation; concrete experience, both personal and racial, as always, is part of the basis of organization and reorganization. This emphasis on concrete experience becomes a philosophical dogma when framed in the form that religious truth, while divine in origin, and necessary for the individual, is, nevertheless, obtained in its entirety only through the concrete effort of the individual and the group, cooperating and striving throughout a long period of time; revelation, in other words, is progressive, and its full fruition is dependent on the efforts and abilities of the individual. Hence religion and reason are not antagonistic, but supplementary; reason not only reveals the new divine truth but interprets the old revelation. Reason, indeed, if it be true reason, cannot contradict revelation. There is something of the true Greek spirit in this, not a shallow and formal imitation of the spirit of Greece, but one reborn and reconsecrated; it is the very essence of the Age of Discovery, not yet fully mature, neglecting much that was later to have great significance, but nevertheless forward looking and creative; individualistic, yet socialized.

Some of the concrete results of this new point of view are worth noting even in so brief a sketch; the idea of education for all, the establishment of systems of schools, state controlled, the intention that each individual might have personal access to the sources of authority and be dependent on no mediation of a superior learned class—these are a few of the concrete changes brought about in the educational world through the rise of a new philosophy; changes, moreover which are the beginning of that series of further changes which has given us the principles of modern school systems. That the development since that time to the present is continuous, however, is neither apparent nor true; the impetus of the Reformation soon expended itself in divergent fields; the humanistic, leading to mere formalism and dead conservatism; the more purely theological with an emphasis on older issues; the scientific and philosophical proper, leading, in its turn, to the next general reorganization of thought and social practice. Writes Luther, "Were there neither soul, heaven, nor hell, it would be still necessary to have schools for the sake of affairs here below, as the history of the Greeks and Romans plainly teaches. The world has need of educated men and women, to the end that the men may govern the country properly, and that the women may properly bring up their children, . . ." And the particular conception of the content and method of education which he developed is, in every sense, the reflection of his general system of thought, his reaction to life and living, study and research—in a word, his philosophy. One could gravely and learnedly discuss Luther's theory of knowledge, his metaphysics, his cosmology; that he did not write systematically upon them as a technical philosopher is no reason for doubting that he had both beliefs and attitudes in these matters; perusal of his writings brings to light passages curiously reminiscent, at times, of the attitude, plain and practical, of Socrates; the thought is not merely for the sake of the thought; application, testing, modification, attainment and progress are his paramount interests; his thought was deliberately an instrument for the directing and guiding of the social conduct of his time. That both his philosophy and his social practice was felt to be significant at the time is clear from the emphatic reaction against it on the part of those whose beliefs, and consequently whose social philosophy, were antagonistic. The Teaching Congregations, among them notably the Jesuits, actively competed for authority, offering and advising a different system of control than that of the State, a different curriculum and a different method of education. Where Luther aimed at the development of individuality within a fundamentally homogenous group, his opponents aimed at a disciplined similarity, likewise

within a homogenous group; both expressed an educational philosophy, though the one saw education as a development, the other as an approximation to a pre-conceived and pre-established standard.

It is in Francis Bacon, however, that we find both the truest expression of the characteristics and tendencies of the new attitude toward the world, the new philosophy, the new social theory; in Bacon, too, we find a deliberate and conscious expression of the relation of philosophy and social control that is almost unique in the history of thought. Nor is it at all possible either to deny the title of philosopher or to gloss over the utilitarian, socialized, practical nature of his thought. More philosophical than Luther, in that his survey of experience was far greater and the commitment to pre-conceived and pre-existing standards far less, he is more productive of concrete change in the course of human experience, both individual and social. His attitude toward the older scholasticism is worth noting; "This kind of degenerate learning did chiefly reign amongst the Schoolmen, who having sharp and strong wits, and abundance of leisure, and small variety of reading, but their wits being shut up in the cells of a few authors (chiefly Aristotle their dictator) as their persons were shut up in the cells of monasteries and colleges, and knowing little history, either of nature or time, did out of no great quantity of matter and infinite agitation of wit spin out unto us those laborious webs of learning which are extant in their books. For the wit and mind of man—if it work upon itself—brings forth cobwebs of learning—of no substance or profit." This is, of course, his interested reaction to that which he did not value; it is clear, however, where his values do lie, not only in this passage but in innumerable formal and deliberate expressions of his conception of philosophy and its purpose, albeit he promises more than he carries to a perfect conclusion.

A philosopher—and his philosophy—are at once a beginning and an end; so, at least, it has always apparently been. An end, in that the philosophy is an attempt to stem the current of disintegration that the society of his time shows, an attempt to give new reasons for old faiths, or new reasons for things that will be done or believed anyway, to bolster up, to placate, to encourage, to convert. A beginning, in that *now,* it is implied between the lines of the new analysis, a real leader has appeared, one who will unfailingly lead the people to the promised land—if they but believe and follow the new creed. One sees the whole circle travelled many times in even the brief record we call history; first the crude, undifferentiated group, ruled by custom and the "ways of the fathers", prospering in their pursuit of the primitive values of their times, coming after a while upon a less hardy but

more leisured and lettered group, usurping their fields and wealth, adopting and modifying their culture, becoming in turn themselves leisurely and soft and finally succumbing to a newer bearer of the more primitive and brutal values. What does it all mean? That civilization must inevitably perish after a brief alloted span, or that civilization has never yet really been? That philosophy, since it is always an accompaniment of approaching disintegration, is a sign of decadence and ruin? Or rather, that philosophy has never yet produced a flower and a culture that has justified both itself and its source? Bacon, the student of society and social affairs, is but a successor of Socrates, the seeker of civic virtue; of Plato, the politician with ideals, and of all the others with that civic and social vision and purpose who have come in between. He is the end of an age of "the corruption of philosophy by superstition and an admixture of theology"; he is the beginning of an age of "philosophy as science"; (Novum Organum) in both senses, of course, only too comparatively. "The end of our new logic" (i. e., Philosophy), he writes, "is to find not arguments but arts; not probable reasons but plans and designs of works; to overcome not an adversary but nature in action." (ibid, preface.) In the Interpretation of Nature, he writes, philosophy will aim at a "restitution and re-investing of man to sovereignty and power, in that wheresoever he shall be able to call the creatures by their true name, he shall again command them which he had in his first state of creation." Here, then, philosophy is not only a guide to proper conduct, an ethic for society, but will also lead to something in and of itself valuable. "Knowledge is power", but power not merely because it is knowledge, but because it can and does lead to such action that the final stage of society and the individual so guided is better than the stage from which he started. "There is another great and powerful cause why the sciences have made but little progress, which is this. It is not possible to run a course aright, when the goal itself has not rightly been placed." (Novum Organum). Philosophy is to control, but to an end; it is to be coercive, but definitely and justifiably so, and the justification will be human, inherent. Here, at first, there appears nothing new; philosophy has always justified itself, in writing at least, by its fruits born of faith and knowledge, but there is a new shade of meaning. Biological, it might be called, though it is hardly that quite frankly yet, suggesting in meaning, if not in words, the ethical attitude of Aristotle; it is perhaps best thought of as a preliminary adumbration of what is later to be a biological criticism of the purpose of philosophy and the "goal" toward which it educates man. It is "utilitarian", in the bald and vague sense of that

term; philosophy is to lead to the useful, the good, the valuable, but not yet are these definitely or "scientifically" (in Bacon's inductive sense) defined; that is a problem for a later age than his. Yet it is the problem of Socrates and of Plato, in their search for "virtue", of Aristotle and the "good will", of Democritus and his "happiness"; it is the search for "salvation", for the "absolute", the "ideal". It is the search for that which will, when found, utterly and indisputably justify itself, then and there.

It is fitting, perhaps, at this point to digress upon a consideration of the antithesis of the "pure" and the "applied"; the complete and the relative. I shall be told, doubtless, that all this so-called philosophy which I have found in the history of civilization, so far, is but the application of a more real philosophy; that when Plato speaks of his "ideal", when Bacon concerns himself with logic and theory of knowledge, when the primitive priest delivers himself of a doctrine of the soul, ... then and then only is there real philosophy, "pure" philosophy. But this is to make the real the conceptual! Writes Stirner, "Everything is sung according to concepts, ... Now nothing but mind rules in the world. An innumerable multitude of concepts buzz about in people's heads, and what are those doing who endeavor to get further? They are negating these concepts to put new ones in their places!" (Der Einzige und sein Eigentum) "Pure" and "applied" are themselves concepts; useful, to be sure, if we do not allow them to utterly destroy with their sound and associations the real field of experience from which they have been constructed. Between the two is no exact, sharp and verifiable line of demarkation; they indicate an emphasis, a distinction, but in each case *for a purpose.* What is pure in one connection may, perhaps, be applied or relative in another, or at another time, and vice versa. That the term "pure" is relative in these senses as well as in others is clearly seen if the attempt be made to be utterly and completely "pure" and disinterested in research in any field. The endeavor to think of that which has no relation to experience past, immediate or future, defeats itself; we can only think of that and relative to that which our previous experience has in some sense touched upon; that we *do* think in any given direction is but an application of what we have thought before. The distinction, a relative one as has been said, lies rather in the immediateness of the application; we call that "pure" research which is interested in the more formal and general aspects of experience, in logical relationships (somewhat the same thing); we call that "applied" or "relative" which is interested in the more concrete, the more elementary, the more restricted. Yet each is built upon human experience;

both are at once, from different points of view, "pure" and "applied". Experience is a flux, which we tie in bundles, as it were, with the bindings of our words, ... and become ourselves entangled. Experience is, in some sense, a whole (while the organism endures and functions), in which language points out a *this* and a *that* for the sake of emphasis and distinction as it passes; but this pointing is demonstrative, indicative, relative, not creative in the fundamental sense. All thought is human thought, rises out of human situations and leads to human conclusions and readjustments—either activities or further thought, but ultimately and inevitably to activities of one kind or another.

In our historic progression, it happens that two of the successors of Bacon—Hobbes and Spinoza—represent respectively the apparent antithesis of "applied" and "pure" in philosophy; one the materialist, par excellence, in modern philosophy, and the other the "philosopher's philosopher"; out of touch, it would seem, with real problems of the world of crude experience and interested only in the "impractical". The contrast, however, is but apparent; both sought in the medley of fleeting experience for a guiding thread; both were teachers; both offered a solution, limited and biased, to be sure, but one that was a philosophy, in that it subjected experience to analysis and extracted from it both a goal for human effort and a means of attaining that goal. That Hobbes emphasized the pugnacity of the individual, that he apparently did not believe in what later came to be called altruistic conduct, that he wrote, "the passions which incline men to peace are fear of death, desire or such things as are necessary to commodious living, and a hope by their industry to obtain them", ... all this is merely *his* solution, *his* survey, *his* philosophy, ... but *a* philosophy, for all that it is applied to concrete problems of associated living. The problem of Spinoza is the problem of Plato: What is good? What is bad? What is the final form of associated living, or will there indeed be no associated living, but mere anarchy and individual riot? Put in these words his problem allies itself with the concreteness of Hobbes, but in the form of an Ethics, written with mathematical abstractness and rigor, it comes nearer, in the conventional sense, to a "pure" philosophy. Yet its origin was the same political turmoil, its vision the same age-old vision of a solution of human trials and tribulations as the coarser and cruder creed of Hobbes.

The search goes faster; the vision becomes clearer; may we guess that already the more exact knowledge of man and his environment, his past and his future, was beginning to control, even in the

philosopher's closet, the course of his thought? Writes Duff (Spinoza's Political and Ethical Philosophy) "It can be shown that Spinoza had no interest in metaphysics for its own sake, while he was passionately interested in moral and political problems. He was a metaphysician at all only in the sense that he was resolute in thinking out the ideas, principles and categories which are interwoven with all our political endeavor, and the proper understanding of which is the condition of human welfare." After all, the problem of Socrates became that of Plato, though the expression of it was changed; in like manner, the problem of Hobbes is the problem of Spinoza: "Whither do we go, and why, and how?" "Good" and "bad" (evil?) become not things in themselves to Spinoza, but rather a condensed reflection of the judgment of the individual, or of a group of individuals. Men are animals (again the biological note), but also "political"; the problem of ethics and politics is to balance the opposing "apish" and animal-like individualism of the single man with his real, but feebler tendences to become socialized. That much of his anthropology, much of his discourses on the "natural state" and the "state of primitive man" is purely guess work and speculation, is beside the point; the fact is that he sought to show both the goal of human endeavor and the means of attaining it in terms of concrete facts of human nature. Deception and compulsion had failed; there must needs be found a new way; and the new way is the old way of Socrates, of Plato, of a host of others; . . . . the liberating force of intelligence and knowledge. The goal is expansion, freedom, opportunity, ... for the individual, to be sure, but only in so far as he is a co-operative unit with other like-minded and similarly striving units. The way is intelligence, control; control of false ideas, of passions, of greed, of fear, of hatred. It is an ideal easily put in more exact, ... and more biological terms; but the succinct statement in such terms is left for a later age. But note: the goal of human endeavor is no longer merely knowledge, merely passive acquaintance with the nature of things as they are; it is knowledge for the sake of achievement, acquaintance for the sake of manipulation, for the sake of power, for the sake of the satisfying of human needs and aspirations.

So the story goes on, but with ever-increasing emphasis on the concrete, the practical, the political, the ethical and the biological. It becomes more and more apparent that at times even quite unconsciously and against its own official avowed purpose as it were, philosophy has always dealt with social values and social aims; indeed, were it not that there exists even now the olden tendency to be "pure" at all costs, and did not "schools" exist whose open and only purpose is

to demonstrate logically and conceptually the supreme excellence of *their* particular system of abstract and shadowy "absolutes,,' the whole argument of the preceeding pages might well be called unnecessary. Were it but freely acknowledged that under the avowed purpose of seeking "ultimate, final and absolute truths and realities" there lies hidden, always and everywhere, needing but to be made conscious and explicit, a frank search for social values and social purposes! Yet no reading of the pages of the contemporary philosophical magazines can convince one that any unanimity on this point has been reached; opinions here and there, arguments not quite so numerous, an occasional appeal . . . . these point, to be sure, to the gradual spread of a consciousness of the social and educational meaning and purpose of philosophy, but the dead weight of the majority still weighs against it.

One pictures a philosopher: first, as his words would have him to be; then . . . . as he is! His words would have it that he is all compounded of logic, pure if not simple; nothing has been admitted into his survey of the cosmos but that which has itself been derived . . . . whence? "It stands to reason that such is such and so is so"; not because of experience, impulse, ambition, fear, but only because of reason! Why then the many reasons of many philosophers? Can it indeed be that they have in truth not been quite as reasonable as they have claimed; that they have "created" reasons for that which they *wished* to be so? One ponders over the mechanics of the Freudian psychology, recalling the "defence reaction" of the poor in heart and body, and wonders, "Can it ever have been that a philosopher, despairing of the conquest of the real world of warm and brutal facts and experiences, retired definitely from the struggle, and made for himself a new world, all-compact, easy to know, *his* conquered land and place for rest! Primus in orbe fecit deos timor; nor is that all that fear has created. It would be almost impossible to overestimate the value of a psychoanalytic treatment of the historical succession of philosophers, which would show the systems which they have generated not merely in relation to those of their predecessors, but in relation to their parents, childhood, education, health and vitality . . . . their innermost fears, hopes and pleasures! For a philosopher, be he ever so much a sage, is also a human being; unwillingly, perhaps, but inevitably. But hallowed and shadowed by time, the philosopher comes down to us as a man apart, not as other people; he eats but in deference to custom; marriage and death and love touch him but in moments of weakness; he is half-god. One feels the real and human touch in reading of a Xantippe, of a philosopher running from the plague, in

sensing the anger when an essay did *not* win the prize; in such episodes as these the philosopher becomes also man, and his system a reflection of his life. Yet the greatest of the great have seen for themselves their own limitations, and frankly sought the opinions of others, adding to their own experience the accumulated wisdom of the ages and, however high their heads have been among the stars, have yet felt under their feet the earth, solid and real. The new philosopher, the philosopher of this world and this people will have his bias too; to be human is to be biased; but his bias will be not personal, nor subjective, nor based on individual fears and hopes, but objective, based on experienced and demonstrated goods and bads, based on the broad foundation of the nature of human nature as it is in the race and ever has been. Once more Man will be the measure of all things, but a Man whose record stretches back through untold aeons and whose progeny inhabit the earth. Writes Dewey: "Philosophy which surrenders its somewhat barren monopoly of dealing with Ultimate and Absolute Reality will find a compensation in enlightening the moral forces which move mankind and in contributing to the aspirations of men to attain to a more ordered and intelligent happiness." (Reconstruction in Philosophy). "Nihil humanum a me alienum est" should be her motto, the "logic of discovery" her method, "delicate, fantastic and contentious" learning her pet annoyance, and her goal the freeing of the creative capacities of man.

With Descartes, Spinoza and their successors we have come to the so-called modern period; modern, however, in a rather dubious sense. If by that term we mean that the "delicate, fantastic and contentious" learning that was the butt of Bacon came even approximately to be supplanted by a definite, coherent and communal effort at social righteousness, the term is a misnomer; if, however, we mean that there was some attempt at a reanalysis embracing terms, methods and intentions more nearly congruent with standard and typical contemporaneous efforts, the term is understandable, though misleading. Socrates and Bacon are in any sense of the term, except the strictly chronological, more modern than many since the latter; Descartes, indeed, while apparently modern of the most modern, but beckons in with the one hand the old ideas and concepts he had scornfully waved away with the other; he gives new names but keeps old friends; his philosophy is still "pure". The Cosmologist is still the main figure; the world is still of many stuffs; analogy is still, as with the primitive man, a source of truth; there is no clear delineation of a field of experience, *within* which, but indubitably *in* which, distinctions may be made; the world is cleft in two, and there is but the flimsiest

of bridges between. And yet, word for word, all the writings of Descartes reflect the earnest endeavor to "show the way to the promised land", to make easier the effort of man both to know and to control his environment and his future; but it is, at best, an *endeavor* that is shown; his thought is too full of "a prioris", too committed to the established as a foundation for deduction, too far removed from the sobering control of experimentation and observation. "Proofs" are merely sylogistic; the doctrine of body and soul (mind) is fabricated of merest fancy; ideas have seemingly a separate and independent existence and come to the mind full blown; the hierarchy of ideas reflects rather Descartes' subconscious desires than the order of nature spread before him; method is an independent and all powerful entity in itself; the world is a mechanism. But all this insistence on innate ideas and intuition is but for the purpose of giving a sure and indestructible foundation for morals, politics and religion; orthodox religion, while previously true, has now the support of reason—the innate, intuitive ideas common to all men alike. It is the same old tale of buttressing the old with the new; of stabilizing the decaying and disintegrating mores of society with a new sanction, a final and indisputable one, an "absolute" and "ultimate" one; it is the problem alike of the primitive "soothsayers" and the Athenian galaxy. Bacon has been forgotten.

There is no need, in this sketch, which seeks but to present a point of view, to cover in detail the remainder of the long succession of systems and system-makers to the present day; some few points here and there will suffice for the purpose in mind, and lead into the second consideration—the problems of philosophy considered in themselves. With increasing emphasis and detail the *practical* conclusion and application of his systematized and abstract concepts is made by each philosopher. Locke, in his Essay on Government and in The Reasonableness of Christianity, assuredly does not renounce his more abstract and "philosophical" ventures and conclusions but puts them into concrete and immediate application. Berkeley literally founds his system on a desire to annihilate materialism (without, perhaps, clearly understanding it); his metaphysics is a foundation for a theology and an ethics. Hume, Butler, Shaftsbury, Hutchinson, all are ultimately concerned with the values in human behavior, the motives behind it, the control that may and should be exerted upon it and the justification thereof. Rousseau whether one is justified in calling him philosopher or not (though from this essay's point of view he is pre-eminently so) is concerned, par excellence, with conduct, with human conditions, with human societal happiness; his philosophy is a veritable pedagogy,

with curriculum, method and aims expressed in detail, and worked out via a symbolic "child of nature" to whom all the world would be a field of experience, reasonable, beautiful and good. His Social Contract is a sociology; a system of associated living; that it is false in its assumptions, and perhaps in conclusions also, is not the point at issue; that it *was* a sociology based on the widest survey he could make of life and history is the happy characteristic that lifts it high in the record of modern times. Moreover, it considers Man; not an idealized, conceptual Being, endowed with a mysterious faculty of ratiocination productive of something from nothing, ... but Man is the Socratic sense once more, in the Baconian sense, ... Man as we find him among the animals, among the scenes of life and toil. It is a biological survey, though even yet not in purely objective, descriptive and verifiiable terms; but the concept and the fact of human nature, of the "original nature of man", is becoming clearer. The realistic, disciplinary conception of Locke has become broader in that the naturalistic criticism of Rousseau has been added to it; once more feeling, emotion, sentiment, wish and impulse have been pictured as quite as human as logic and reason; the whole man again appears. That Naturalism becomes at times pure Romanticism is true; that the effort to enhance emotion, impulse, will, feeling and sentiment leads to the neglect of the logical and the reasonable, is, at times, also true; it is difficult to be all-wise, either in life or in philosophy. Yet who can choose between the two rival attitudes; that man is all reason, reason made flesh, and that reason will solve all his difficulties; and the contrary that man is all feeling, that reason but obscures the issue, that intuition, impulse is all? He would be a rash judge indeed who said that all the trials and tribulations of modern times would or could be done away with if we were all logical, and he would be as rash at least who sought for peace and satisfaction in the following of the impulse—the wish—the emotional bias. That no philosophy is capable of completely analyzing the Man who has been endlessly analyzed, and of building the broad foundation of a science that will at one and the same ttime minister to the logical and the intuitive would be perhaps the maddest statement of all.

In Kant we see both a definite proof of the insufficiency of reason or logic apart from experience as well as a new and far reaching example of the educational and sociological application of philosophy. Reason, it becomes quite apparent, can offer no conclusions without the experience on which to base them; we may not advance through mere manipulation of words, be they ever so abstract, from the field of experience to that which is utterly and in its very nature apart

from that field; we are limited to that which is our environment. God, free-will, casuality . . . . these and other things, we may, perhaps, experience, but apart from that experience we may not prove them even to be nor demonstrate their nature. We may *believe,* we may hope, we may weigh the probabilities, but through experience and participation alone may we conclusively establish. Of the great Unknowable we can know nothing . . . . not even that we do not know! This, the critical aspect of his teaching, would seem to have born less fruit than the emphases which he placed on the *a priori,* the "regulative from above", the external and superior authority, the principles and laws of order and system. These, reinforced by current social and political necessity, as well as by later presentations of the same point of view became the foundation, the justification, the unanswerable reason for a type of state and a species of civilization. The *taboo* of primitive society takes on new form and power. The Critique of Practical Reason but re-establishes, the firmer for ever having been even theoretically doubted, the old lines of thought, belief and activity. "Act as if" takes the place of "Credo ut intellegam", of "Credo quia absurdum", and a host of other "Credos". When once it has been admitted that there are elements guiding and shaping experience which experience itself, be it ever so narrowly and reverently searched, cannot either verify or dispute, (for all the assertion that they are there!) the way is open for the importation and enforcement of any and all guiding principles acceptable to a ruling class. Without carrying the argument too far it is apparent that when primitive conditions had been succeeded by the formation of fairly definite layers in the population, as well as extreme differentiations of labor and forms of occupation, that that class most free to speculate was also most free to impose the results of such speculations upon the unprepared and unenlightened whose activities lay in other directions than metaphysics. This is again, of course, philosophy as education, as sociology.

Hegel, though he confines himself, theoretically and avowedly at least, to the field of experience, denying a "reason" which is exterior to and unembodied in phenomena drifts, none the less, into the same type of metaphysical subtleties which were the stock in trade of his contemporaries. By virtue of the very abstractness in which he clothes his thought, his reflections upon experience become, as it were, a treatise on "experience as such", not an analysis of experience in Germany in his own time and society. His conclusions with reference to state, religion, property and "will" are inapplicable to concrete difficulties in connection with any of them; they possess a suggestiveness imported in the main from the experience of the individual endeavor-

ing to solve their meaning; they do not offer the ground and the means of solution, but halt inquiry through their very definite indefiniteness. Experience is always concrete, always here and now, and generalizations based on highly limited and extremely specialized experience tend rather to justify the existent than lead to further experiment and discovery. Hegel's whole treatment of family, religion, state, individual, society, property, marriage and the other concrete institutions which have been evolved in European history but tends to call them good because they exist in the present moment. What is last in evolution is best because it is last, and because the last must be the best. This is not a weighing of values, it is not an effort at thorough and objective analysis, it is not a search for the good, the true and the beautiful; it is simply philosophy in the service of central authority; it is, in Hegel's particular formulation, bad education, bad sociology, but none the less thoroughly and completely both.

Schopenhauer, Comte, Mill, Darwin, Spencer, Nietzsche, bring the outline to our own times with ever increasing emphasis on the practical service and significance of philosophy and philosophizing, and with ever-increasing consciousness of that emphasis; a consciousness and an emphasis, however, as has been stated, by no means unanimous or unresisted, though *these* names, at least, stand out. Schopenhauer points the way to salvation; Comte reconstructs society; Mill offers a system of conduct and a method of control; Darwin begins that analysis of the biologic history of man which is to be a new thread in later speculation and later societal analyses; Spencer offers just such an analysis; Nietzsche points to a super-man, a man who will be veritably man. Human, one and all; interested, frankly, in what man has been, what man is to be; using thought to understand his past history, to predict and to control what his future state is to be; interested in values rather than in static descriptions. "The question of values", writes Nietzsche, "is more *fundamental* than the question of certainty: the latter only becomes serious once the question of values has been answered". (Will to Power.) And the future is still with us.

Let us come back to the point at issue; is philosophy for the sake of the activity and the attitude of philosophizing itself, or is it a means to an end which will be both more concrete, more social and more inherently satisfying? It would be futile to deny that the activity of philosophizing *is* satisfying, as are all activities indulged in with interest and native urge, but the satisfyingness of pure research, uncontaminated speculation, pure, unadulterated knowledge, inevitably

palls; never yet was there an avowed solipsist who did not beg and beseech the general public, or the enlightened portion of it at least, to believe him and follow his counsel! Were he consistent he would remain silent. "Nothing is more to me than myself", writes Stirner in some five hundred pages of fervid but futile argument. (ibid). Presumably he wanted others to become acquainted with the fact! Perhaps even to believe and act in accordance! The philosopher is indubitably public-spirited; sometimes his conception of "public" is narrow and puerile, but he *has* in every case *an* audience, ...

Is the fruit of philosophy to be but the warming of the heart of the philosopher who gets a new "slant" on the universe, or at best the sharing of that warmth with a few disciples and its dissipation in the coldness of the criticism of those who have other "slants"? Or if philosophers have no hearts (and we are inclined to believe that they seldom function!) shall the value of philosophy lie merely in the calm and unruffled appreciation of the fact that the universe is apparently thus and so and not otherwise! Is philosophy a game that we play with neurons, and when they all become set in a definite symmetric pattern with none unused to worry us, shall we call, Checkmate! to the universe that has called us into being, and sigh for more universes to play with! Surely not; yet the History of Philosophy (so-called) abounds in abortive attempts thus to chart and behold, all in the mind's eye, the field of our life and experience. Abortive, for the philosopher has ever reckoned without his host, without taking into account the very process whereby that intelligence which he endeavors to misuse has come into being. Intelligence is for action, for success, for adaptation, for plans, for construction. The ends which man forsees as good and toward which he strives are concrete in their content, however abstract they may be in expression; his philosophy, if it be not the mere compensatory raving of a maladjusted and retiring weakling, is such a survey of time and space and the materials of experience as will enable him more adequately to live the career which he feels striving within him for expression. Philosophy was born in the welter of conflicting opinions and impulses of an earlier period, waxed old in the endless discussions and rediscussions of every side of every inherited dogma and, if it is not utterly to perish of old age and inaniation must needs find new food for itself and new roads to travel. Philosophy, instead of endeavoring to fly from the world of possible experience to a transcendent world of purely imagined grandeur and realness, must once more gladly concern itself with the affairs of the "man in the street", though the street be now paved instead of earthen and the traffic be motor-borne instead of by beasts

of burden. Instead of scheming speculative Utopias that bear no relation to either the nature of the environment or the nature of man it must concern itself with the deepest hopes and the most far-reaching plans that are compatible with both these inherited limitations to his activity. The love of wisdom, to be sure, will always be hers, but let her beware, lest she turn inwardly and love . . . . *herself!*

CHAPTER II

THE PROBLEMS OF PHILOSOPHY

In the preceding chapter we have endeavored to indicate somewhat briefly the underlying social intent in the various systems and quasi-systems which have succeeded one another in the record of the civilization of Western Europe. When that record of thought and endeavor is examined from a qualitative rather than an historical point of view it becomes apparent that certain recurrent "problems" have absorbed the attention of thinkers removed from one another far in time and cultural surroundings; which problems, though differently phrased in different times and places and differing in immediate cause of origin have, nevertheless, a common core of meaning and significance. They have, most of them, been highly abstract and "pure" in the sense of the term previously discussed, but they have arisen from a mass of experience far from abstract or pure in the same sense. It is here contended that these problems, though they have usually been so phrased that their real significance has been hidden, have had, each and all of them, a very practical bearing on the social life of the community in which they arose or in which they are now debated. They have arisen in the course of the endeavor to remould the social code and mores either in terms of a disintegrating discipline or in terms of something "nearer to the heart's desire"; they represent the presumably best and most authoritative phrasing of guiding principles as well as the presumably widest generalization of the perplexities of fleeting human experience; they are the voice of the age, the spirit of the times, albeit somewhat unintelligible to the common man who reads them as he runs.

That they need to be re-phrased is apparent; if they are to be actually and not merely designedly a guide for conduct and expression they must be reviewed in the light of a more conscious and deliberate philosophizing which views itself as a form of social guidance. Not all of them can be considered here; a brief table, listing some of the more important and long-lived problems, and contrasting with their

historical expression a more concrete and socially adequate phrasing, together with a summary consideration of some few of outstanding importance is all that can be attempted at present. The following list, then, is confessedly incomplete and tentative.

"Problems" for "speculation."	"Fields of research" for science.
1. Knowledge.	1. The learning process. Scientific method. Language. Primitive thought.
2. Innate ideas.	2. Original nature. Genetic psychology.
3. Body and mind ("soul").	3. The human organism. Comparative psychology. The nervous system.
4. Freedom and determinism.	4. The "springs of conduct". The conscious and the "Unconscious".
5. Happiness.	5. Biological "satisfyingness". The meaning of "readiness, exercise and effect". The inheritance of the individual.
6. Logic. The laws of thought.	6. The evolution of intelligence. Study of language. Primitive thought and method. Thinking as a type of conduct.
7. God, the soul and immortality.	7. Experience. Origin of religion. Original nature. Primitive thought.
8. Teleology.	8. Progress, its nature and attainment. History. Purpose.
9. "State" and "Individual".	9. Co-operative activity. Experiment and experience. Social purpose. Original human nature.
10. Platonic Ideas.	10. Social control. Social purpose. Mores.
11. Casuality.	11. Meaning, purpose and control.
12. Absolutes, Things-in-themselves.	12. Experience. Language.

Historically speaking, it is true that the attempt to "solve" any one of the problems here listed has usually involved the necessity of considering one or more others; so likewise, a consideration of one of the "studies" will certainly be found to require an attitude toward and a knowledge of one or more of the others. This would seem to lie in the very nature of our experience which is not susceptible of analysis or (complete) understanding by fragments. But there is no need to make an additional "problem" out of this statement (if true!) and speculate as to the nature of "experience as such" or "the irreducible minimum of analyzable experience". This would be right in line with the older discipline; the newer would find the solution (if it were sought) within the realm being discussed. That there are other problems, as well as other ways of stating those here listed, has been acknowledged; the present list, however, contains those which, it appears, are of present importance, are still open to discussion, and of supreme value in social guidance. It is doubtful if they have been listed in the *order* of their importance.

A discussion of the "problem of knowledge" both from the historic point of view and from the point of view of an "objective, experimental and historical study" will make the contrast more concrete. It will at once, perhaps, be objected that before one may undertake an objective, experimental or historical study of such nature that any credence may be placed in the conclusions reached, a prior study must be made as to the "nature, possibility and limits" of "knowledge-as-such", "knowledge in general". On the contrary, it is here held that no study or investigation of the limits, nature or possibility of knowledge-as-such can be undertaken, if at all, until concrete and experimental evidence of this-knowledge and that-knowledge is assembled and examined. Knowledge of things comes before knowledge about the process or confines of knowledge in general. "Knowledge about the limits or possibilities of knowledge" implies and requires in practice the assumption that knowledge about *itself* is both possible and attained. The proper attitude for a staunch epistemologist of the austere school would be a blank and meaningless stare at the universe—which, however, would be no universe for him, but only for the callow, non-epistemological observer living in a world of concrete knowledges. It is no joke to become lost in a wilderness of doubt and he is indeed a wise man who knows that he knows! After all, it is a matter of definition and experience, and if we so define our premises and inquiries that they make conclusions impossible, we need but recast our line of inquiry and search again for valid conclusions. It has been claimed, and is indeed still held as true, that the science of knowledge of the possibility

of knowledge is prior to all other human discussion and belief, and that, furthermore, this science of knowledge is no generalization from the realm of attainments in mathematics, physics, chemistry, history or any other branch of research, but is an independent discipline, obtaining aid from nothing but its own self and defining clearly the rights, territories and methods as well as the credibility of all other inquiry. If a study be not "criticized" by such a theory and science of knowledge it is no study but mere dogmatic utterance of belief; so ran and so runs the epistemological creed. Yet, it should be apparent, that in attaining the cannons and generalities of their science epistemologists have but used the very apparatus and outfit of original nature—sense organs, nervous system—which priest and prophet, scientist and historian have for ages used, with no greater assurance of their perfection or infallibility. That the epistemologist seeks to fly higher is true; that he seeks to find greater generalizations than history or science offers is also true; but that he has found them, or that his method of research is valid is here held *not* true. Knowledge-in-general, as a mere fact of experience does not exist; knowledge is always and everywhere knowledge of *this* or *that,* it is *now* or *then.* There has also been a tremendous emphasis, historically, on what might be called the intellectual aspect of knowledge, an emphasis which ignored the part which sensation, memory, activity, feeling-tone and a host of other things played in that really complex situation . . . . knowledge. To have knowledge of a flower, for example, by perceiving it, is not to have knowledge in this absolutistic sense, but it is emphatically knowledge, then and there, and pre-supposes nothing as to the possibility of that knowledge . . . . it simply *is.* To have to show the grounds for knowing that we know in this instance would get us nowhere, for the assertion that we do (or do not) know in this instance, takes for granted, at the least, that we "know we have (some) knowledge" which statement would itself be subject to the same criticism as the original and so on back in an infinite regress of "knowings". All of which would get us no further on the path of real living and understanding of experience and never has done so. All of this, of course, is old argument, and much more to the same effect might well be added, the conclusion of which would inevitably be what should long since have been thoroughly realized and acted upon: namely, that epistemology is not fundamental, is not self-sustaining, is not the dictator of the other fields of endeavor, but is, after all, empirical, inductive and one among the sciences, from which it has taken much, and to which it has contributed . . . . little. We may, indeed, continue to call that field of endeavor which specializes in

knowledge about knowledge *epistemology* (if we can avoid the old implications), but it will be one of the sciences, an equal among equals, at the best, and will frankly adopt the hitherto despised experimental and empirical method of research. It will be frankly associated with psychology (on which it in part depends); it will, as other sciences, use apparatus, observe the learning process whereby we come to have knowledge or "there is knowledge", will be interested in the origin and growth of language, in primitive modes and ways of thought, in biology and the study of the human machine, and always and ever in the concrete activity of human beings pursuing their daily round of affairs. In the following chapter, rather than in this, which is mainly critical, the details of this more realistic epistemology will be developed—as an experimental science, not a mere speculation.

The problem of "innate ideas" requires little consideration. Most emphatically it is not a problem solvable by speculation; it, too, like the preceding problem, will yield to actual investigation, experiment and observation; if there *are* innate ideas, it will suffice to produce them and to exhibit the evidence of their genesis through other than the medium of human experience. It will be the business of the opponents of such doctrine to show clearly and incontrovertably that *all* ideas are the product of experience, that they are conditioned, if such language is permissible, by the nature of the organism which has experience. Ideas thus become a form of *behavior,* a reaction to the environment, social and physical, in which they arise. Change either the organism or the environment and the idea resulting from interaction will be different. Here again we have an experimental problem for the psychologist working in conjunction with the anthropologist, with the student of primitive thought and language; it is a genetic problem, individual and racial. Thought, as in the preceding paragraph, ceases to be a mysterious non-human something, imported into human affairs and regulating them from without and above, but becomes merely one mode of human conduct, susceptible, as are all the others, to accurate and detailed investigation. With the two foregoing problems is naturally associated that of "body and mind". The usual treatment has been highly speculative; attempts that have apparently been inductive have in part proceeded from too insufficient data and have in part been controlled by preconceived notions of what a proper and acceptible solution should and indeed must be. Epiphenominalism, energetics, limited or complete parallelism, double aspect theories, monistic conceptions . . . . one and all still strive for that philosophical supremacy which will permit control and dictation of methods and curricula in social education and propaganda. Perhaps

nowhere has the fight been more bitter and the epithets more violent. Materialist! Mystic! Solipsist! Yet it is doubtful if there is yet sufficient ground for a complete and demonstrable solution or description; working hypotheses, yes; final conviction, no. It is, as emphatically as in the case of the other problems we have discussed a field for unbiased research; it is in experience, not in concepts, that the solution is to be found. A priori musts and necessities will yield in proportion as evidence is accumulated; evidence from many sources . . . . biology and physiology, the study of the nervous system, the study graced with the name of "physical research", primitive thought.

Again, both historically and actually; there is close connection with the problem of "God, the soul and immortality". "Theology", writes Macintosh, in his Theology as an Empirical Science, "in its days of undisputed supremacy, was defined as the science of God." And again, "For what theology seeks to systematize is not so much our appreciation of the divine ideal as our knowledge of the divine being". . . . . "And what we mean by "scientific" is not merely logical in the older deductive sense, ..." Here at least, in the field of theology there is earnest effort to break away from the speculative and enter into the exact and quantitative. His attitude toward philosophy in general is interesting: "If . . . . there can be developed a scientific theology, it would appear possible for philosophy to be strictly objective and essentially scientific, ... When once this has been accomplished, the way will have been opened, for the first time in the history of thought, for the making of philosophy at the same time adequately spiritual in its appreciations and adequately scientific in its methods." Making due allowance for his frankly acknowledged idea that theology should still be the "queen of the sciences", we find here, at least, a definite reaction from the older attitude toward the problems of experience and a promising effort to reduce to order one domain of human interest. God, if he is to be other than merely conceptual, must be a matter of experience; this is part, at least, of the meaning of the Reformation. So too with "soul" and "immortality"; the suggestive irony of Omar's "Strange, is it not, ... that none return . . . .", must give way to the assurance of the first hand knowledge that some do . . . . or do not. In any case, while counting noses seldom settles anything but the preponderance of opinion, still we should be more catholic in our statistics, in collecting and evaluating opinions. Even now Schiller and Leuba have made accessible significant groups of opinion in this connection.

Another group of problems somewhat closely associated may be compounded of the items in the preceding list called, respectively,

happiness, teleology and the freedom-determinism controversy. Here we are dealing, from one angle or another, with the source of human conduct, whether caused from the past or directed by that which is yet to be. The question of "happiness" is particularly interesting. It, too, is one which has been settled in the past on the basis of pure speculation; the facts of the case show clearly that we desire *things,* that we endeavor to act in accordance with the impulses which are at the moment "ready" biologically to "go off", that we act on impulse of this nature often with no anticipation of what the effect will be in terms of happiness, pain or pleasure, that in any event a desire is never aroused or created by the anticipation of its own satisfaction. Speculation has confused the essential and radical distinction between pleasure and an object arousing a desire. The object of a desire is not pleasure; an object is pleasurable because it is the habitual or biological terminus of desire. Pleasure is an accompaniment of some activities; activities are responses to stimulations; experience and original nature determine for us what stimuli and what responses are congenial and pleasurable. Fundamentally the equations explaining conduct will run in terms of behavior series, mechanism of response and stimulation, not in terms of ideas or anticipated pleasure or pain. Even with the additional complication of memory the facts remain the same. We seek objects, primarily, not states of consciousness, though we may revise the attitude we have toward an object after we have experienced its influence upon our nature. Here is a whole field for laboratory and social research, and it applies not only to the individual but to the group; for groups, like individuals, respond to things, and subsequent response will always be in terms of earlier experience and its effects. Not only do we not seek happiness or pleasure, but other phrasings of the same nature are as essentially false; we do not seek perfection (as a state of consciousness), nor blessedness, nor logical certainty, nor the satisfaction of truth in the above sense, but always a state of affairs, concrete and real, which is satisfactory in a structural and biological way to the organism and its acquired modifications. In every case the object of desire is primary, the anticipated pleasure secondary, and in what might be called, for want of better terms, a perfect environment, *anticipated* pleasure might quite likely be entirely absent; pleasure would be a by-product of experience, a necessary one to be sure, but for all that not the conscious criterion in motivating conduct. This to be sure calls for the positive statement describing what such an environment, social and physical would be like; again such positive considerations are deferred to the second part of the essay.

Enough has perhaps been said to show that not only is the whole subject of philosophy an immensely significant and indispensable one, but that the age-old problems which have been generated in the course of its historical development are far from having reached any solution that is final and adequate. The problems of philosophy, it has been often said, are dead; nothing more can be added to the solutions of the past centuries; still they live. It is too often forgotten, as has been repeatedly stated here, that philosophy is in no sense a mere playing with words, a mere unimportant gesture toward the universe, but an activity, at bottom, however often and long it may have failed to measure up to its ideals, of the utmost social and educational significance. As the historical development, when examined from this point of view, shows the truth of this contention, so too, an examination of the problems crystallized out in the course of time, show just the same social and educational bias and purpose. We have already examined, briefly, the possible transformation of such speculative problems into concrete and experimental studies, which would yield, when adequately pursued, fact in place of theory. It remains to show, again but briefly, the educational and social implications and applications of the results of such studies. They are, to be sure, clearly apparent to the most casual survey. To remark at random; if determinism is true we can educate; if not, how can we sway the future conduct of children in terms of their experiences during the period we now uncritically call "formative"; if innate ideas exist, what are they, that we may know what else to add, what to expect because of them, which of them to eradicate, (if possible), how to organize experience in terms of them if they are of a constitutive nature, and so on. On the other hand, if no ideas are given, but only the framework, in the form of a body and a nervous system, "in" which, so to speak, ideas may be generated, then it behooves us, most emphatically, to come to know this process of modifying original nature that we may, in every case, not only succeed in modifying it in the direction which we will call best, but know that we have elicited from it the maximum of efficient activity that is fundamentally possible. If the "body" and the "mind", in the older sense of the terms are unrelated, the conclusions for education are obvious; if it should become adequately demonstrated that the terms involve a conception of a false dualism, inherited from an earlier period of speculation (as would seem to be the truth in the matter) then other conclusions for curricula and method are as obvious. The question of "happiness" as discussed above, when settled one way of the other, leads to immense differences in our endeavor to shape and mould both in-

dividual and society. God, the soul and immortality are again matters which have in the past and will in the future be directive of human conduct; according as our knowledge, belief and attitude is with reference to these, so will be our activity in the general affairs of life; we must live with relation to these or without any reference to them; we cannot at one and the same time do both, and the facts alone can determine what we will do.

We have, then, covered the first two portions of our investigation; it remains to present the more constructive aspect of the problem, keeping in mind both the inadequacy of the older solutions as well as the possibilities of the newer outlook and intention. "The immense extension of our knowledge of facts in recent times has had . . . two effects upon the general intellectual outlook. On the one hand, it has made men distrustful of the truth of wide, ambitious systems; theories come and go swiftly, each serving, for a moment, to classify known facts and promote the search for new ones, but each in turn proving inadequate to deal with the new facts when they have been found. . . . On the other hand, the new facts have brought new powers; man's physical control over natural forces has been increasing with unexampled rapidity, and promises to increase in the future beyond all easily assignable limits. Thus alongside of despair as regards ultimate theory there is an immense optimism as regards practice: what men can *do* seems almost boundless. . . . . No philosophy is tolerated which sets bounds to man's capacity of gratifying his wishes; and thus the very despair of theory is invoked to silence every whisper of doubt as regards the possibilities of practical achievement." (Bertrand Russell, Our Knowledge of the External World.)

UNIVERSITY RESEARCH*

MAYNARD M. METCALF

Research, delving into the field of reality to advance one's own and the world's knowledge of truth. What motives may lead one into a life of such endeavor? The motives may be as varied as are the characters and interests of the men engaged in the pursuit. But the urge which seems the most productive of the highest grade work is that of the fun of the game, the pleasure in the reseach itself, the love of truth and its pursuit. Ulterior motives of personal profit, of ambition for fame, or even the desire to promote the progress of civilization and the well-being of society, all have an element of danger. They are likely to persuade the student, perhaps unconsciously, to control the direction of his search, turning it into "profitable" channels. But no man can know where lie the great undiscovered truths. Truth itself is a safer guide into the unknown than is any man's guess as to the probable best line of approach to worth-while knowledge. The student who humbly follows where the subject itself seems to lead him, eager to follow whatever turn the investigation naturally takes, is the one most likely to find the richest deposits for his mining. Truth is too manifold, too unexpected, too great, oftentimes too profoundly simple, for any man's successful anticipating. From the most unexpected sources come discoveries that open great vistas far beyond the previous imagining of any man. The humble following of the subject itself and the suggestions that develop in the research is the method usually that brings one to the largest results. Interest in the subject itself, the desire to know the truth, the pleasure, the uplift of soul, that comes with the gaining of some new vision into a hitherto unexplored field of reality, these are the safest guides, leading one to results in value far beyond fame, or financial profit, or some invention that shall increase the perhaps already too great complexity of human life.

This instinct for truth, this love of understanding for its own sake, is ingrained in the human soul and is surely one of the natural human desires best worth satisfying. The endeavor to learn God's thoughts and to think them after Him is one of the two wholly worth-

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*An address to the Faculty and Council of the University of Buffalo, April 26, 1922.

while exercises of man's powers. Of the other one we will speak soon.

Somewhat contrasted with this search for truth for the fun of the knowing, for the fun of the game, there is the field of research for "practical profit", for the sake of wealth, of production, of amelioration of human life. This set of motives in research is not unworthy, far from it, but it is less productive and is less uplifting to the student.

Of course there is no sharp line of demarcation between pure research and applied research, reseach, on the one hand, in which the worker seeks only added knowledge of reality and is led by his subject, humbly and eagerly following its leading, and, on the other hand, research directed to the accomplishment of some particular task with a view to financial or some other "practical" profit. The two inevitably grade into each other, and each type of incentive may have in it a larger or smaller admixture of the other.

But this much is true :—It is the the pure scientific research, rather than the applied research, which brings the largest results. The order is— first the discovery of some phenomenon hitherto unrecognized, then following it up by thorogoing observation, an appreciation of new relations, of a field of reality not before realized, and then oftentimes there follows some suggestion of "practical" values to be reached by application of the newly acquired knowledge of fact and relation. And here enters properly the applied research directed toward the successful application of new scientific knowledge to industrial and other social activities. The pure science leads, the applied science follows. Applied science is essentially the fitting to so-called practical uses of knowledge gained by research in pure science. Applied science is dependent always upon pure science. It is research in pure science which opens up the new field before applied science can enter. Research in pure science is the essential foundation upon which research in applied science may be built.

We use the word science. This must not be misunderstood. It should cover the whole field of knowledge of reality, the whole knowledge of truth, not only the truths of chemistry, physics, astronomy, geology, biology, but as well the truths in human relations, including the whole series of realities expressed in history, literature, philosophy, religion and human character. The whole realm of truth, of reality, is included in the word science as we here use it, and the student of the realities underlying human relations is as much a student of science

as is the student of pure physics. The philosopher or the student of religion, occupied with the observational and experimental study of the truths of relation of man to man and of man to the universe and its control, is as truly a man of science as is the physicist. Our theme is no narrow, restricted one. Observation and experiment in the field of qualitative phenomena and relations is as truly scientific as is the study of those phenomena and relations which may be expressed in terms of meters and grams. Beauty is as true a measure of reality as is physical mensuration.

Let us note a couple of illustrations of the "practical" values coming from pure research. These may both be taken from the little university city of Würzburg in Bavaria. On the beautifully parked Glacisstrasse in this quiet little city stands the Physics Institute of the University, where Roentgen discovered the X-ray and opened to newer and wider vistas the whole science of radio-activity to which the Curies later gave such further reach. Our whole concept of the constitution of matter has been changed by these researches and all knowledge of chemistry and physics must be restated in terms of this new concept. This has all been the purest of pure science research, but in every field of applied science the new ideas must be introduced and be controlling.

Note just one of the thousands of "practical" applications of this new knowledge. The X-rays of Roentgen and the radium emanations studied by the Curies were found to have toxic effects upon the tissue cells of animals and plants, and in the course of many and varied experiments with them it was found that cells in division or cells depressed by certain unfavorable environmental conditions are killed by these emanations more quickly than are ordinary cells. This soon led to experimentation with cancer tissue, in whose tumors dividing cells and cellular poisons are especially abundant, with the result that it was found possible to destroy certain types of cancer by exposing them to the X-ray or radium emanations. Prolonged, intensive, applied research in this field has developed refinements of procedure which have greatly increased the range of this general method of cure of cancer and there is reasonable hope of its still further successful extension. This is but one of a thousand applications of discoveries made in this field first opened and developed as pure science.

A block down the street in this same city of Würzburg stands the Zoölogical Institute, where Boveri, probably the greatest zoölogist of his generation, was studying the germ cells of different animals with a

view to larger knowledge of the condition and behavior of the material upon which inheritance is dependent. In the course of his studies of irregularly dividing double-fertilized sea-urchin eggs he noted, as a side issue of his main studies, numerous degenerating cells strangely paralleling in appearance the degenerating cells so frequent in cancer tissue. Murray of the British Cancer Research Fund, a former pupil of Boveri, was called in to study the resemblance between these abnormal cells in the sea-urchin embryos and degenerating cancer cells, and the exactness of the resemblance, even in detail, was found to be real. Now Boveri had shown that the degenerating cells in the sea-urchin embryos were cells in which the numerical relations of the chromosomes* had become distorted, too many or too few being present, owing to the irregular divisions that had taken place after double fertilization. From these studies of Boveri upon abnormally dividing sea-urchin eggs has come the keenest suggestion yet made as to the real nature of human cancer, and it is altogether likely that further research applied to this end will show that true cancer tissue is always tissue in the nuclei of whose cells the numerical relations of the chromosomes, or their constituent particles, have become distorted.

Thus on the same street in this little university city in Bavaria were conducted two pieces of purely scientific research, as minor side issues of which there happened to develop knowledge of the nature and possible cure of almost the greatest human scourge. This is but one spectacular instance of the way in which continually pure science research is opening the way for applied research with results bearing upon human life.

What is life anyway? Isn't it, on the one hand, the search for knowledge as to the realities in the midst of which we live and to which we must relate ourselves? This is one side of the shield, the search for truth. The other is the loyal application in life of so much of the truth as we have grasped. Search for truth, loyalty to truth. Isn't that the whole of life? And neither phase can adequately be developed without the other. One who is not loyally living the truth as known is not a worthy and largely successful searcher for more truth. And of course without truth known through faithful search there is no truth that can be applied in daily living. Furthermore, the man of prejudice, whose mind is not freely open to new truth, can not be

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* The independent particles into which the inheritance-controlling material is always divided.

called loyal to truth. The search for truth and its loyal application to life; knowledge of reality and loyalty to reality; isn't this all of life in its worthy aspects? How keen and strong then is the urge to research, to seeking for knowledge of the truth as to the realities in the midst of which we must live and to which we must relate ourselves! Isn't it a fair half of all higher life? Granted the minimum of effort necessary to keep our human bodies alive, should not at least a full half of all man's energy beyond this be devoted to this search for added knowledge, be devoted to research? Is it in any way too high a claim for this, one of the two phases of worthy life?

Pure research, research for the love of truth, for the pleasure and uplift in the knowing, is not only the chief research, it is research calling for the highest abilities. We should keep for pure research the ablest students, letting men of sound ability but lesser power enter the field of applied research, often under the general advice of the keener leaders. The habit of industrial institutions of calling the strongest research students into the study of minor problems of applied science is a dangerous one, likely to prove disastrous even to the industries themselves in the end. The reason for this is that such a course sterilizes science in two ways: First, it withdraws the keenest students from the more important, more fundamental studies and puts them into the minor field of detailed application of the major truths, thus preventing many discoveries of new phenomena and relations upon which further great progress is dependent. It also does a second serious injury. It takes the great research men away from the universities, limits their contact with pupils, and in this way also in the end tends to sterility in science. It is a short-sighted policy which calls a great research student out of the university into industry, a policy from which industry itself suffers in the succeeding generations.

And the menace is a real one both to science and to industry. The salaries offered by the large corporations are so far in advance of those given in the universities that many strong men, with regret to be sure, turn from their pursuit of a beloved science to the study of its applications to a particular industry. I think many of them do this with a certain half recognized feeling of shame, a feeling of deserting a field of knightly endeavor for what is really but worthy yeoman's work. The call of the flesh pots is very tempting, and the work to which they go is thoroughly worthy and important, but these leaders are nevertheless leaving the more important field, in which only men

like themselves, of great capacity, can work with great success and which will not adequately be explored by lesser men.*

There is developing today another threat to fundamental research in pure science that comes with the growth of institutions founded especially for research and distinct from, apart from, our universities. Pure research institutions, unassociated with teaching, tend toward sterilization of science in the following generation. In the growth of knowledge perhaps there is no single element so important as that of the inspiration which comes to young students from contact with older men who are devoted to research and are successful in such research, opening to our vision the fundamental aspects of the sciences they pursue. The purely research institutions, like the Rockefeller Institute and our experiment stations, call away from contact with pupils men who might well be giving inspiration to younger students who are beginning to get into this great game. It is, I believe, of the greatest importance to have our universities and colleges serve as centers of inspiration to research. Their activities should be planned with this as one of their two chief ends in view. First they should cultivate a spirit of loyalty to truth, of loyal living in sound relation to reality, and second they should inspire a desire to search for truth, to search for fuller knowledge of the realities to which we must all relate ourselves.

Let us spend a few moments in considering research in our colleges and universities. Let us think of the matter first from the standpoint of the pupil, then from the standpoint of the institution.

During twenty years of teaching I have annually preached to my pupils a sermon on the value of research to them as a part of their general education—not as preparation for their life profession, but as a part of their general training for worthy life, for a life of real satisfaction. I have urged pupils of real calibre to follow up their college work, which necessarily is divided between many subjects, with intensive study of some one subject, such study as will bring to them a feeling of confident judgment in this field. If they are able to go on to the university they are very fortunate. If not able to do this, let them take up some subject which they can follow with such aid from men and books as is available to them. It may be no more than the history

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* Men often go into industrial laboratories for the sake of better facilities for work there offered. An objection to this procedure is discussed in the next paragraph.

of the town in which they live, or the habits of some insect in their own back yard. But whatever the subject chosen, let it be followed until the student has reached a point of sound, independent judgment in the field and of confidence in his ability to find and recognize the facts and something of their meaning. He will then be "an authority" in this little field, and having become himself an authority he will forever despise authority. He will have emancipated himself from truckling fear in the presence of the printed word or in the face of a statement by the "great man". There is no authority except in truth. Respect for authority, except the authority of truth, is a dwarfing thing. It hinders independence of judgment. And nothing so emancipates a man from fear of authority as does becoming himself an authority. As a part of a man's general training for life, he should raise himself into that atmosphere where he meets men as his peers and thinks with them of truth and its applications, instead of thinking under their domination. Research to the point of independent judgment is the thing to make a man a man and not a serf.

Pray do not misunderstand what is said in the foregoing paragraph. From such casual research very little advance of the world's knowledge is likely to come. It is the value to the student and not the contribution to the world's knowledge that is in mind. Research of real scientific value is a most painstaking thing which must have background of broad and thorough knowledge and which requires a trained skill, neither of which will come except through prolonged labor.

Do not fear that research to the point of independent judgment will make the student "cocky". Nothing more tends to make one humble than does the loyal search for truth and the inevitable realization it brings that real truth in its breadth and depth is infinitely beyond the capacity of the greatest human mind to grasp. Any one science envisions only a single facet of truth and the interrelations of different aspects of truth are such that the labor of many men in many fields is necessary adequately to develop even a very minor field. To the man of research all truth as grasped is held with the humble knowledge that it is of necessity but partial and full of uneliminated error. Loyalty and humility are constant companions of worthy research, and research is the crowning feature in one's general education for life.

From the standpoint of the university and college what shall we say? How can the college give to its abler students inspiration to research, and how shall the university guide them in research? The inspiration comes best from personal contact with men whose lives and

whose whole spirit show devotion to truth and its discovery. Almost any teacher, whatever his personality, if he be himself genuinely devoted to the search for truth, will find that this spirit of his will get across at least to the more worthy of his pupils. One can't say just how the spirit is caught. Its contagion works through a thousand ways. But experience has shown that it is real; that the teacher's devotion to his subject, if genuine and vital, gets across to his pupils and engenders in them something of desire to get into the great game.

Speaking first of the college:—If it were my privilege to give the determining advice in the endeavor to develop a thoroughly strong college, I would urge as the first consideration that the members of the faculty should be growing, productive men, imbued with devotion each to his own subject and actively engaged in research in his field. Teaching of the finest quality, full of inspiration to genuine interest in the subject, can come only from men productively devoted to their subject. I would have success in productive study in his field an essential prerequisite to advancement in position and salary.* To this end, demands for teaching upon the time and energy of the teacher should be so regulated that a full half of the teacher's time and energy could be given to research, and it should be emphasized that such research is as essential a part of his service of the college as is the teaching, as much a part of the service for which he draws his salary, as essential a part of the service through which the college is to grow and thrive. Three months in the summer is already the teacher's own. Half time for one semester added to this would about make the half time which seems a minimum. To all professors of all grades at least this amount of freedom for research should be given. I would not make such demands upon even the least instructor as should prevent his giving half his time and energy to research, but I would advise having comparatively few instructors, almost all the actual teachers being thoroughly trained men and worthy of professorial rank, except for experience.

Activities other than research or its applications should not be allowed to occupy the free time, especially there should be no summer-

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* Of course perfunctory research for the sake merely of advancement in salary or position should not be rewarded. Men who do not evidence a real spirit of research for its own sake should be eliminated. Inspiration comes from men who love the game, not from those who merely go through the motions.

school teaching or teaching for other institutions as a substitute for research. Genuinely productive study of a sort to result in the teacher's growth in his field, and such as to make valuable contributions to this field should be expected.

If a college gave fair living salaries and then followed the course suggested as to the division of time and energy between teaching and research, it would find it not difficult to attract the strongest men. It could call almost any man from a college conducted on the plan at present prevalent, and it could compete with strong universities for its faculty members. The thing that makes a college is not great buildings, not great amounts of money, but its faculty. They are the ones who do the work and upon them is dependent the character of the work and the success of the institution. Of course good, living salaries and necessary equipment must be provided, but it is the men who are the determining factor.

May I be pardoned specific reference to two colleges in which I have taught? When Oberlin College received a gift of several million dollars, making her the best endowed college (not university) in the country, she promptly voted two things:—First that the number admitted to the freshman class from year to year should be such as to make the number in the college about one thousand, this with the thought that the thorough training of a few is a far greater contribution than the less adequate training of larger numbers; Second, they voted that it should be the policy of the college to have more professors than associate professors and more associate professsors than instructors, this with the desire that the pupils should come into contact chiefly with thoroughly trained teachers. Oberlin has not yet adopted half time teaching for its faculty. Indeed no college in the country has done this.

In Goucher College (and to a less extent in Oberlin) two devices were adopted which acted as a fine spur to the students. These devices, with the fact that most of the faculty were young men and women actively engaged in research, resulted in the remarkable record for Goucher's first twenty years of just one-fifth of her graduates going on to university work or to graduate work in institutions requiring college graduation as prerequisite for admission. This is a most enviable record.

The devices mentioned were 1) departmental lectures and 2) graduate scholarships. Nearly every department had each year one or more

lecturers from outside the institution, men of calibre in the departmental field, often giving a series of lectures. Not only the members of the department but many others in the college and in the city attended these lectures, and they proved a decided tonic to the several departments. Graduate scholarships were offered, some to members of the graduating class, others to recent graduates, to enable them to go forward with research upon plans approved by the departmental advisors and the general faculty. At the close of the freshman year each student in Goucher heard the award of the scholarships, part of them to those who were personal friends. The result was that throughout the college course the students had in mind the thought of graduate work and that they themselves might wish to go further in study than their college work would take them. Under all these conditions there developed such an interest that every year the teachers had numerous pupils coming to them in real trouble because they were so interested in each of several unrelated subjects that they felt they must go on to graduate work in each, though of course they realized that they could choose but one to follow further. That is the sort of college work that counts, college work that opens vistas in many directions, vistas so attractive that to turn away from any one of them is a hardship. That is the sort of college work to be aimed at by those who have the planning and direction of a college.

But while departmental lectures and research scholarships are genuine aids in engendering a fine spirit among college students, the most real thing is the contagion from the spirit and work of a faculty of productive scholars. To make a great college, gather a group of productive men as teachers and then let them work under conditions that will continue their productiveness and growth.

Of the university much the same should be said. Of course, in the graduate school, research is, or should be, the business of the student, and of course less demand for teaching should be made upon the professor. Personal guidance of their pupils in research is far more important than courses of lectures for them to attend, though some such courses are natural. I have in mind two universities which placed very different relative emphasis upon research and upon lecture courses. In one of these universities I know that during four years there was not in the zoölogical department a single graduate course of lectures. In the corresponding department of the other university there were numerous wonderfully fine courses of lectures, the finest offered at any university in the world, so fine that the student could

not pass them by. In the first institution the students spent their time being zoölogists until they got the habit. In the other institution the students spent so much time in attending lectures and reading around the lectures that they had inadequate time to begin being zoölogists. In relative productiveness the graduates of the former institution outclassed in later life the graduates of the second institution.

We have spoken of research by the faculty in college and of research by faculty and students in the university. How about the technical school? Shall the technical school have a lower ideal, attempting to teach its pupils how to do particular things rather than how to explore and enlarge the field in which they are engaged? If this is to continue to be a distinction between university and technical school, then in which category shall we place the medical school, the dental school, the school of law, the school of theology, the school of art (musical, plastic and pictorial), the school of "social science" etc.? It seems to the writer an insult to any of these professions to deny it special preparatory schools of the true university type, schools which shall introduce to research and active production. Of course we must have in some of these subjects short-cut schools, but should we not have also the schools giving the more profound training? Let us note but two of these professions in a little more detail—engineering and medicine.

Some years ago, in southern California, the writer was in conversation with an engineering contractor, a man who did the biggest things and employed thousands of men in his undertakings. He told me that when he wanted a particular, definite, clean cut job done he liked to get a graduate of a good technical school and put him in charge of it. But when he had a puzzling problem to solve, he sought the thoroughly trained university man and put the problem up to him. Do we not need men of both types of training, the technically trained men for the jobs and the more deeply trained men for the problems? But until within a few years there have been no engineering universities and now there is but one. There has been no institution where the college trained man could go for full graduate work in engineering and find himself working with other college graduates. He must accept an undergraduate school for engineering studies, a school using methods adapted to undergraduates rather than graduates. And in these schools little, if any, research would be demanded, nor would there be much stimulus to research. It is a great advance that now we have one graduate school of engineering research.

And as to medicine:—If there is any profession in which the research spirit is needed it is surely that of medicine. Most of the faculty in a medical school should be men engaged in medical research, though there might well be a few technical experts. And an M. D. degree should mean as much as a Ph. D. degree and should require as a prerequisite the successful accomplishment of a piece of medical research. It is insulting to medicine to place its degree upon its present low plane. There are interests greater than those that come into the hands of the man of medicine. He deals with human beings both body and soul and the whole life of the patient is under the influence of his physician. Should we not demand that this physician shall be thoroughly trained, trained to the point of sound judgment in his field and not be merely a practitioner upon the basis of the text-book? Every obscure case of illness should be to the physician a problem to be approached in the thoroughgoing spirit of research. Treatment of the symptoms, with the cause unknown, is unfortunately often times necessary, but the worthy physician is one who studies his problem rather than sponges from a text-book. He should study his own cases with thorough, prolonged attention. It is this habit that is productive of growth in the practitioner and which will advance the science and art of medicine. We are accepting with apparent complacency far too low a standard for this great profession. Our medical schools should become centers of medical research. Every doctor of medicine should have earned his degree through a piece of good medical research. Why should not the American standard for this degree be as high as that in Germany? Is the highest any too high for us?

Just one word as to law schools:—Are the wretched over-emphasis upon technicality and precedent and the archaic condition of our civil and penal code in America, (a practice and a condition which are one of our national disgraces) due in part to the character of our law schools into which the spirit of research and independent judgment hardly enters?

What shall we say in conclusion? What is needed to the promotion of research in general?

First, an appreciation of the values in research;

Second, adequate financial support of research and this *chiefly in our universities;*

Third, having the faculties not only of our universities, but also

of our colleges and technical schools made up almost entirely of men engaged in active research;

Fourth, the provision of media for the prompt and adequate publication of all worth-while results of research;

Fifth, the provision of funds for research grants, especially for endowing the work of transcendently valuable men whose studies have brought them to the point where there is opening up before them more work of vital importance than they can personally accomplish, but which they could direct others in following through to success.

The Orchard Laboratory,
Oberlin, Ohio

THE CHIEF END OF EDUCATION*

Charles A. Richmond

There is a compact little book known to all Scotchmen, and especially to all sons of Scotchmen of a generation ago. It is called the Shorter Catechism. The first question in that catechism is: "What is Man's Chief End?" And the answer is: "Man's chief end is to glorify God and to enjoy him forever." And this suggests to me an answer to the question, What is the chief end of education? The chief end of education is to develop in man the image of God. To accept any lower definition is to cheapen and stultify the whole business.

I want to say this at the outset because it furnishes a background and establishes a foundation upon which a really adequate philosophy of education may be built. And I want to emphasize it as strongly as I can because there are a good many so-called educators who are laying so much stress upon the mechanics of education that they are forgetting altogether the animating spirit without which an education is a barren monotony and an educator a dull dog. Education is really another name for evolution and the goal is the same.

The chief end of evolution, so far as we know it, is to develop man to his highest. What we are mainly concerned with in education is to help the man to self-realization, to lead him to his inheritance—his promised land.

And this promised land is not bounded by the walls of a factory nor the show window of a shop. It is a place of wide horizons, a place of many and varied interests, a land where there is beauty on every side and where the choice spirits of every age offer us their companionship.

We have recently been astonished at the achievements of wireless telegraphy and telephony. Messages have come direct from amazing distances. We can talk with our friends far out at sea. Even across the ocean. But the essential point in all such communication is that the receiver shall be in tune with the sender. This is precisely what education can do and must do for a man. The ether is full of messages sent out by the great minds and souls of the world—in the

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* Summary of Convocation Address, September 26, 1921.

written word, in paintings and sculptures, in architecture and in music. But no one gets their message unless he is tuned to the sender. The great men of all generations are like the wireless stations set up on the high places of the earth, answering one another across the wide spaces of the air and through the long ages. But what use are they to us if we are not tuned to them? How can they make us hear these wonderful revelations of truth and beauty if there is in us no responding vibration of thought and feeling? What is Homer to the man who has no poetry, and what is Beethoven to the man who has no music in himself, and what is Jesus to the man who has no spiritual aspirations? Rapport is the sine qua non of understanding—"The secret of the Lord is with them that fear Him." Spiritual things are spiritually discerned. The pure in heart see God. Purity answers to purity, spirit to spirit. I think it was Carlyle who said, "I do not wonder at what men suffer but I wonder often at the things they are willing to miss."

These are among the tragedies of life. Perhaps it is too much to expect that all men shall become highly sensitive or delicately perceptive but surely it is the business of education to tune the minds and spirits of men to this higher harmony and this higher wisdom. For certainly it is the birthright of every man. It belongs to the whole world. We cannot make them all hear. Some men fail of their inheritance and may always fail, but this at least will be the aim of education. To devise deliberately a system of education that will dull the mind and spirit to these voices of God and to make them responsive only to the voices of the market place or the jingle of coin is robbing him of his birthright. And is it not also belittling to his intelligence and degrading to his spirit?

Yet this is what certain influential men are proposing—to narrow his horizon, to reduce the number of his contacts, to shut his eyes to beauty and his ears to sweet sounds, to exclude from the realm of his mind everything that cannot be turned to account in what he calls the practical making of his career, as if the function of a university is merely to turn out slick business men. It is a deadly program. To make any such philosophy the basis of our education, or to allow it to dominate our aims, will be not merely to make this a nation of shop keepers but a nation of greedy, self-seeking, unspiritual men—a nation that will have nothing to contribute to civilization and that will eventually be held in low esteem by every other nation in the world.

A sound and worthy system of education will have in mind an aim and purpose exactly the opposite of this.

James Russell Lowell defined a university as a place where nothing useful was taught. He meant, of course, that a cheap utility was not the real function of a university. This is not to say that the main purpose of a university is to make itself of as little use as possible, nor that the ideal university man should be an expensive and unnecessary luxury. A university must serve the people or it has no right to exist. No man is worth his salt unless he is a serviceable man. But there is a higher and a lower service and there are noble and base uses. The movies are a national institution. The people use them and they use the people. But how many of them are of any real use? Universities have their points of difference but they are alike in this, they are all devoted to the highest service and consecrated to the noblest uses. In the past they furnished the leaders in church, in state, in law, in medicine, in education. Today they are providing leaders not only in the learned professions but the leaders in industry, in commercial enterprise—the men to whom we entrust the gravest concerns of the nation in peace and in war.

And through these sons of theirs the universities are influencing profoundly the whole life of our democracy. We must see to it then that these men whom we are sending out are not merely men whom we have taught to win a cheap success for themselves but men to whom opportunity means responsibility; men in close sympathy with the people because they are of the people, but who are qualified by learning and sound judgment to lead the people. Men who know how to be democratic without being vulgar. Above all, men touched with the fine fire of patriotism caught from the noble spirits of the past whom they have learned to revere and love.

This is the high duty charged to you by the twenty-four thousand men and women whose contributions have recently made possible this great university. The universities and colleges that have been longer at the task of leading reluctant youth into the paths of wisdom look to you to maintain these fine traditions of the past. At the beginning of this new era which is opening before you we bring you our congratulations and bid you God speed.

Union College

MAN'S ORIGIN, AND THE METHOD OF HIS EVOLUTION

No person of intelligence who is at all conversant with the phenomena involved now questions the fact of evolution. The evidence that evolution has occurred is entirely convincing. Belief in evolution now stands on a par with belief in gravitation. It is important, of course, that young students should review the evidence upon which belief in evolution rests, but this is hardly appropriate for us this evening. A more restricted theme seems appropriate for this occasion.

While there is now among men of science no questioning of the fact of evolution, there are still unsolved problems as to the method of evolution. The origin of variations (of mutations) is especially obscure and there is a good deal of discussion of this point. Bateson, who was recently an honored guest at the meetings of the American Association for the Advancement of Science at Toronto, feels that we have made little or no progress in our search for the causes of variation, and he is pessimistic as to the immediate future in this search.

During the early days of the discussion of organic evolution, there was considerable confusion as to natural selection, clear distinction not being made between the idea of natural selection as a cause of evolution and natural selection as a controller of evolution. This distinction was brought out only after some years of discussion, often pretty sharp discussion, among students of evolutionary phenomena and theory.

At the same time with this discussion there was equally lively discussion as to the relative importance of natural selection compared with other factors in evolution. The question of the inheritance of acquired characters divided biologists into two opposed camps.

More recently, discriminative thinking as to the nature of variation and certain very important discoveries as to the real

nature and method of inheritance have given rise to a good deal of polemic upon these themes.

In all these discussions between men of science the fact of evolution has been assumed as the basis for the whole discussion. It has not even seemed worth while to mention that the fact of evolution was established. The disputations were upon another plane, were wholly upon questions of a nature subsidiary to this fundamental fact of evolution.

Under these circumstances it was not wholly unnatural that persons unfamiliar with the facts of biology and paleontology and unaccustomed to thinking of a scientific sort should become a bit confused. They saw students of evolution apparently at war among themselves and disputing the truth of one another's contentions. Discussions as to the factors of evolution were mistaken by these outsiders for discussions as to the fact of evolution. Some laymen of the less discriminating sort, even some of considerable prominence, came to think that evolution itself was discredited and abandoned by a large number of biologists. Many persons think, as it were in chunks, instead of with discrimination, especially persons who lack a vivid sense of humor. I have a good friend who is a Scotch-Irishman. We were once together in the gallery of the House of Commons, listening to a debate between perhaps the most prominent English parliamentarian of his day and the Solicitor General, who was a Scotchman. After the discussion, in which the Englishman's argument had been torn to shreds, my friend turned to me with a wicked grin of satisfaction and said "If you ever find a Britisher who can think with fine discriminating quality, you can be sure he's got Scotch blood, or Irish, or belike may have both". If we should accept the illogical implications of this statement, I would venture the prediction that those who discredit the theory of evolution will not be found to be Scotch-Irish.*

To be sure that our terminology in our discussion this evening is accurately understood, we perhaps should define by a few paragraphs of description the meaning of these terms:—inheritance, variation, mutation, natural selection, orthogenesis, acquired characters. We need not take long for this.

Inheritance. We all know that offspring tend in general to resemble their parents. We know that this is true of both plants

*The author, who is of English extraction himself, hopes no one will accuse him of "slamming" the English.

and animals, and we are most familiar with these phenomena among men.

Variation. We all know that inherited resemblance is seldom or never so complete as to produce offspring which are exact copies of either parent. There is always in the offspring some divergence from the parent. Such divergence we call variation. The fact of inheritance and the fact of variation are perfectly clear to us.

But the phenomena of variation and inheritance need a bit closer scrutiny. Careful study of these phenomena by means of controlled breeding experiments has shown us that there are two sharply distinct sorts of variation. Any individual has many qualities, many characteristics, or, as we say in biological parlance, many characters, a characteristic being in biological phraseology a character. Such characters are either stable or unstable. Stable characters are such as tend to reappear in the offspring. They are heritable. Sharply contrasted with these heritable, stable characters are others which are unstable, which do not reappear in the offspring, are not heritable.

Variation gives us in the breeding process new or modified characters in the offspring, characters in which the offspring diverge from the parents, and these divergent characters resulting from variation are found to be divisible into the same two categories—stable, heritable characters, on the one hand, and unstable, non-heritable characters, on the other hand.

Incidentally, the stable, heritable characters are found usually to be greater in extent, more marked, than are unstable, non-heritable characters. This distinction, early observed, led to the stable characters being termed discontinuous or disjunctive, because they did not grade into the parent type; while the unstable characters, less divergent from the parent type, grading into the parental type, were called continuous or conjunctive. I do not like this terminology and do not use it, for some heritable characters are minute, and some non-heritable characters are very marked. The Dutch botanist de Vries has laid great and deserved stress upon this distinction between heritable and non-heritable characters. The heritable new qualities he has called mutations, reserving the word variation for the non-heritable qualities. This attempt to redefine the word variation does not seem to me justified.

It is sure to lead to confusion in terminology. The terminology that seems to me best is as follows:—

Variation
of two sorts
producing by

Mutation (germinal) → Stable qualities ("disjunctive" or "discontinuous")

Fluctuating variation (somatic) → Unstable qualities ("conjunctive" or "continuous")

The terms germinal variation and somatic variation will be defined in connection with acquired characters tomorrow evening.

Of course unstable, non-heritable characters are of no interest in connection with evolution. They are present in one generation and disappear in the next. They are evanescent. Evolution cannot be built upon them. We will make no further reference to them.

Natural selection. Offspring in which apear characters which are sufficiently disadvantageous cannot live to breed and pass on these characters to their offspring in turn. Characters sufficiently disadvantageous cause the elimination of the individuals which have them. In the severe struggle in nature for food and water and a place in the sun, individuals with unfit characteristics succumb. On the other hand, individuals possessing especially advantageous qualities may thereby be helped to survive. By this process of killing the unfit and preserving the fit nature exercises selection, natural selection, the survival of the fittest. By natural selection individuals fitted to their conditions of life survive, while the unfit perish. In this way there results that adaptation of organisms to their environment which is the most salient feature of the world of living things.

Orthogenesis. This term directs attention to phenomena of the greatest importance, which can be illustrated from both paleontology and animal and plant husbandry. In our paleontological record of the evolution of many different kinds of animals (I am not a botanist, so will not refer to plants) we find that period after period the evolving qualities arrange themselves in a direct series, in which step by step the quality under observation is seen steadily

to increase. For example:—In the lakes of Slavonia we find certain fresh-water snails of the genus *Paludina,* (Fig. 1) and in the soil and rock and gravel beds of the same region there are found many fossil *Paludina* shells. A very complete series of these fossils from the Tertiary deposits of Slavonia, if arranged according to their geologic age, shows a remarkable and exceedingly important fact, namely that the oldest fossil Paludinas from the earlier Tertiary deposits have rather short and smooth shells with a circular aperture, while the later shells, as shown in the illustration, step by step acquire slightly greater length from mouth to apex; they become steadily more ridged spirally, and in the latest shells the spiral ridges show the beginnings of spines. The circular aperture in the

Fig. 1. Fossil Paludina shells from fresh-water deposits in Slavonia. (From Metcalf's Organic Evolution, after Romanes.)

earlier shells becomes gradually more pointed at one side, and in the later shells the edge of the aperture becomes quite markedly crenate. Now it is not possible to believe that the successive minute steps by which the changes of shape in these *Paludina* shells occurred were each of selection value, were each so important to the welfare of the snails as to bring it about that the very slightly modified shells should in each step of the progress ensure that in the struggle for existence the snails with very slightly rougher shells survived, while the snails with very slightly smoother shells perished. Natural selection could not result from qualities so slight. It was not natural selection which determined the shell characters of the Paludinas of Slavonia during Tertiary times down to the present.

Then what did cause the very gradual modification of these shells? We don't know. We do know that natural selection was not the determining factor, but we do not know what were the determining influences. The fact of the series progressing by very minute steps, all in one general direction, is clear. This fact we express in the word orthogenesis, meaning that the evolution, once started in this direction, continued in this direction, in a straight line, and by successive steps too small to be each of selection value in the struggle for existence. The orthogenetic evolution was due apparently not to any outside control, but to some inherent tendency in these snails, a tendency continuing through the successive periods of the Tertiary and producing in the end a considerable change in the shells of the Paludinas. We know the fact of orthogenesis as we know the fact of evolution, but in neither case do we know the cause. *Paludina* shells during the Tertiary times in Slavonia tended to mutate very slowly but steadily toward a condition of greater rugosity. Why they did so we do not know. But this fact of inherent trends toward evolution along particular lines and not promoted by natural selection is of the utmost importance in our study of evolution. That we cannot explain the fact does not in the least diminish its importance.

We could give similar evidence of the fact of orthogenetic evolution from many series of fossil forms. Similar facts appear also in breeding experiments. Certain stocks have been found to show, generation after generation, the same sort of variation in a given direction, orthogenetic variation, which if long enough continued would be likely to give extensive orthogenetic evolution.

Evolution in a particular direction has therefore occurred in some animals because of the nature of the beast rather than because of outside influence. To be sure, we are ignorant of the reason

for this. The term orthogenesis tells our knowledge of a frequent fact in evolution, but it also masks our complete ignorance of the underlying cause or causes.

Orthogenesis may go on with no encouragement and no check from natural selection. As long as the characters produced orthogenetically, like the shapes of the *Paludina* shells, are neither useful nor hurtful, natural selection does not operate with reference to them.

But a character, innocent in its inception and early development, may be carried to excess and in the end become sufficiently hurtful to cause the extinction of the animal showing the character. During the Cretaceous period many of the reptiles carried size to an excess. Bulk increases in three dimensions—by cubing, while the nutritive surface, the lining of the alimentary canal, increases in two dimensions—by squaring. Bulk may readily increase beyond the ability of the digestive and absorptive lining of the alimentary canal to nourish it. In this way apparently many huge sorts of reptiles became extinct, by overemphasizing large size, a quality which in its beginnings may have been very advantageous. Like the overgrown reptiles of the Cretaceous period, so also the overgrown mammals of the later Tertiary period have for the most part perished. The giant sloths and armadillos are gone, so are the mammoth and the mastodon and most of the rhinoceroses. The giant elk of Ireland also is extinct, as are most of the former huge ungulates and also the greater bears, tigers and wolves. In the later Tertiary, bulk began to give way to brains, and shrewdness began to dominate mere physical power in the struggle for existence. This period is the time when man developed.

Let us now turn to the origin of man. The method of his evolution, so far as we can judge, has been the same as that of other living things. Mutations have occurred. If innocuous or helpful, the mutant characters have persisted. If sufficiently hurtful, the disadvantageous mutant characters have destroyed their possessors. Thus man has been kept within the limits of reasonable fitness for the life he has had to live and the surroundings in the midst of which he was placed.

In his case, as in that of other animals, qualities, which in their beginnings were neutral or even helpful, may when overemphasized work his undoing. We have noted that man arose at a time when mental acuteness was somewhat replacing physical power as a criterion of survival among the higher mammalia. He himself, more

than all other animals, made good use of this quality of greater intelligence. He learned to cook his food and thus save himself from infection by internal parasites likely otherwise to handicap or even destroy him. He made clothing and built shelters and warmed them by fire, thus protecting himself, and especially his tender offspring, from the inclemency of the weather. By these means he was able to push out from the subtropical regions in which probably he arose and to live in lands otherwise uninhabitable for him. He learned to husband animals for his sustenance and as burden bearers and he learned to cultivate the earth for plant crops. He fashioned implements which gave him enlarged control over nature. He developed transportation, even transportation by ships, and commerce followed. All this, and much more, his increasing intelligence did for him. But it has not all been good.

To what per cent. is human efficiency decreased annually by what we call colds? How many hundreds of millions of dollars is thus lost annually to America alone? The figures, if obtainable, would be startling. But savage people do not suffer to any considerable extent from colds, except in the case of the introduction of highly contagious epidemic colds like influenza through contact with civilized man. Our warm clothing, our warm houses, our weakness due to overeating and lack of vigorous physical exertion make us non-resistant to exposure which the savage meets with safety.

The feral savage is keen-eyed. If he were not he would fail to see and capture animals for his food, would fail to see and escape the stalking beast or human foe. But myopia, or otherwise defective vision, does not kill our children. Aided by the skill of the oculist they overcome this handicap, live and thrive and have children to whom they hand on their defective vision. The modern civilized woman bears her children in the very face of death and without the physician's aid mother and child would both die. The savage mother withdraws by herself, gives birth to her child and bears him proudly back in her arms to the village of her tribe, or if the tribe is on the march she overtakes them and completes the journey with them. Civilized man loses his teeth, his keenness of vision and his vigor soon after middle life. Invalidism is perhaps the most salient characteristic of modern civilized man, while the savage comes into old age with a soundness and vigor quite exceptional among the civilized.

Why is this? How does it come about? The skill of our dentists, our oculists, our physicians, allows us to deteriorate without succumbing in the struggle for existence. Our intelligence and our

emphasis upon the fruits of intelligence in our social life is destroying that physical vigor upon which the savage is dependent for survival. Civilized man saves himself from much of the stress of the struggle for existence, frees himself in a measure from the destroying and also saving action of natural selection. The too defective savage dies. The defective civilized man lives to hand on his defects to his child. Complete escape from natural selection of course is not possible. Those who are too unfit for life still die. But in very considerable degree we have ameliorated our conditions of life and have shielded ourselves from much of the stress of the struggle for existence. This partial escape from natural selection has its personal advantages, but it also has its grave personal, racial and social dangers.

But natural selection still acts to prevent too gross deterioration, and it operates upon all phases of the organism, physical, intellectual and moral. Evil moral character seems very clearly destructive of the individual. Natural selection is ultimately controlling also in its relation to groups of men as well as individuals. Nations are subject to natural selection as we have just seen illustrated in the great war, and in the international struggle for existence moral qualities may be the criteria of success or failure. Germany's repudiation of the idea of international moral responsibility and her conduct consistent with the thought that the nation is above moral consideraions, roused the world to her defeat. Had Germany preserved any considerable remnant of chivalry in her war ideals and war conduct, and had she been less brutally frank in her repudiation of international moral obligations, it seems altogether possible that she might have been victorious in the great war.

But note a bit further the effect of the struggle for existence among nations as well as individuals. America gained much and suffered little in the war and in consequence is likely to miss altogether its cleansing effect. Like Jeshurun, she waxed fat, and like Jeshurun she may come to grief through resisting the Lord's commands. Germany may yet win the greatest prize of all the nations from this great struggle—the prize of national cleansing. If her great Jugend movement succeeds in substituting wholesomeness for the notorious rottenness of her youth, if Walther Rathenau's clear and strong upholding of ideals of national righteousness and national and international service wins through to success, Germany, who was morally the most rotten of western peoples, may, through the cleansing power of this great fire she kindled in sin, be redeemed to whole-

some life. Before the war Germany talked natural selection among nations, basing her conclusions and actions upon physical might. A few of her leaders escaped the moral degeneration that her wrong ideal brought and today are seeing with true insight that in human society the greater criteria of survival and growth are moral and not physical, that righteousness exalteth a nation. This is not a digression from the main point of our discussion. It is an attempt to emphasize one of its major points, namely that the control of social evolution through the struggle for success in human society is based as much upon fundamental moral laws of nature as upon physical and other intellectual phenomena and principles.

Natural selection, then, operates in all phases of human life, both individual and social, and it acts upon the basis of physical, intellectual and moral criteria, for all of these are fundamental in man's nature.

How about orthogenesis? Has man's evolution been orthogenetic or divergent? Among animals and plants we find some groups that have evolved along rather definite restricted lines, as for example the jelly-fishes, or the Slavonian Paludinas we have before instanced. The different steps in their evolution are seen to have trended steadily in one general direction. They form a linear series not determined, so far as we can judge, by outside control, for each successive ancestor was too slightly modified to have been preserved in preference to others by natural selection. Inherent tendency, real though not understood, has operated here.

But in many other groups we find that ancestral fossil individuals, arranged in accordance with evident genetic relationships, take the form not of a linear series but rather of a branching tree, more like a chart of human geneology. In such a branching and divaricating ancestry the evolution may have been by too minute mutations to have been controlled by natural selection. This was probably often the case, but in very many other cases the qualities increasing by inherent tendencies have reached a degree of development when they become of selective value. In this branching type of ancestral development, just as truly as in the linear type, the mutations have doubtless arisen through factors resident in the organisms themselves.

Some mutations seem to involve a trend toward increasing development generation after generation along the line of the new mutant character. This trend is itself a characteristic of the new

mutant stock. In other cases the new mutant character is not accompanied by any trend toward its increase, and never develops beyond its initial state. In some stocks a trend once arisen has persisted for a long period undisturbed by the appearance of any other, conflicting trend. In other groups we find evidence of several successive trends, and to such divergent trends is due the branching character of the ancestral trees. But while doubtless all mutation comes from immediate causes inherent in the organism, and while such trends as may arise are due to inherent factors, still the struggle for existence is ever present and is prompt to act whenever qualities sufficiently disadvantageous suddenly appear, or whenever any quality, through perhaps a long series of stages, develops to such a degree that it becomes seriously injurious.

In man's ancestry we have as yet too few fossil forms for us to determine in full detail what has been the type of his evolution. At least four, and possibly five or six, species of primitive man are known, and these seem to indicate a human ancestral tree of the branching type, but the data as yet discovered are too scanty for positive conclusion. Man arose apparently at the close of the Tertiary period (Fig. 2); apparently as early as the latest Pliocene times, if we accept as of this period the Foxhall deposits in southeastern England in which have been found beach-washed flint implements worked by fire and by hammering. We have discovered fragmentary remains of at least two and possibly three or more genera in the family *Hominidae,* and we know several species in the genus *Homo.*

PALEOZOIC	Alluvial (Post-Glacial)
	Pleistocene
CENOZOIC (Tertiary)	Pliocene
	Miocene
	Ologocene
	Eocene
MESOZOIC	Cretaceous
	Jurassic
	Triassic

PSYCHOZOIC	Permian
	Carboniferous
	Carboniferous
	Devonian
	Silurian
	Ordovician
	Cambrian

Fig. 2. Successive Geologic periods. The older at the bottom.

The first undoubtedly man-like genus to be found was *Pithecanthropus,* whose species *erectus* was discovered by Dubois at Trinil, Java, in 1891. It belongs to the latest Pliocene, say a half million to a million years ago. The remains consist of two molar teeth, the top of the skull, that is the cranium, and the left thigh bone. These were found in association with many mammalian bones. The character of the thigh bone indicates an erect posture and a stature of about five feet six inches. The skull indicates a brain of about 28 ounces. That of the largest of the apes, the gorilla, a much larger animal than *Pithecanthropus,* is 20 ounces. The smallest brain in normal man is 30 ounces. The average for European man is 49 ounces.

The brain chamber of *Pithecanthropus* is large in the region of the speech center, so it is possible, perhaps probable, that this ape-man had developed the beginnings of speech. At any rate he had developed better control than the beasts over those muscles of throat, mouth and larynx upon which speech is dependent.

In the skull the brow ridges are strongly emphasized, more so than in modern man, but not so much so as in the anthropoid apes. This is an ape-like character, but is present in some other members of the human family.

Pithecanthropus was an ape-man as his name indicates—a member of the family *Hominidae,* but not of the genus *Homo.* He was quite likely not in the direct line of man's ancestry, but an offshoot which early became extinct.

A molar tooth of another ape-man intergrade, Hesperoeithecus, has been described recently by Osborn. It was found in late Pliocene deposits in Nebraska, and indicates the presence of man-like

forms in America as early as the earliest known occurrence of such intergrades in the Eastern Hemisphere.

Pithecanthropus was found in Java in a late Pliocene deposit. It is generally thought that true man of the genus Homo originated in southern Asia, so it is natural to find such a man-like genus in an outlying district not far from the supposed place of origin of man himself.

It was most unexpected when there were discovered in the year 1909 and again in 1919 undoubted implements in upper Pliocene deposits of southeastern England in the region of Foxhall. These are chipped implements, chipped by blows and by fire, and later wave-washed on some ancient sea beach. They apparently indicate the presence in England of a being who knew the use of fire and who manufactured flint implements at a time as early as and indeed earlier than the days of *Pithecanthropus,* say three-fourths of a million years ago. These implements are coarsely chipped but are of good form, better indeed than those associated with *"Eoanthropus",* soon to be described. A lower jaw bone was found in 1855 in a still lower stratum in the same region and was drawn and described, but the jaw itself has since disappeared, probably in connection with its removal from England to America by the American physician who owned it. It may or may not have belonged to the same species and race as the people who manufactured the Foxhall flints. The jaw was rather heavily built and powerful and was mineralized, being truly fossil. It had a well developed chin and was much more man-like than that of the English *"Eoanthropus"* or the German Heidelberg man soon to be described. The connection of this jaw with the Foxhall people seems to me very doubtful. The Foxhall implements were made by a true man or at least by a being with intelligence fully equal to that of man. It is simplest to refer to him as the Foxhall man, but recognizing some doubt as to his belonging to the genus *Homo.* Some doubt has been expressed as to the date in the Pliocene of these deposits.

The Piltdown man, originally named *Eoanthropus,* meaning the dawn man of Dawson, was discovered in 1913 at Piltdown, in Sussex, England, in a gravel pit in stream drift gravel. There are a fragmented cranium and face, but the fragments are readily put together, there is also a jaw and a canine tooth found at the same spot. All these bones are fossilized. Numerous fossil mammalian remains in the same stratum show a date about the middle Pleistocene or a

little earlier, say 300,000 to 350,000 years ago, about the same time that the Heidelberg man was living in central Europe. Some doubt as to this date comes from the fact that all is stream drift, and at the time the drift layer was formed washings on the hillside above may have mingled surface bones and bones already long buried, disinterred and reburied by the stream. It is however not likely that the remains are older than the time named, and they may be much younger if interred by man.

The character of the cranium and the face is of great interest. The face is strongly prognathous, that is, protrusive jawed: the forehead is narrow but not receding and is as erect as in modern man. The brow ridges are slight and the cranial wall is very thick. The brain capacity was 43 ounces, almost as much as that of the average European today (49 ounces). The smallest normal human brain today is about 30 ounces. The Piltdown man probably had speech.

The cranium is truly human, that is, of a sort to class its possessor in the genus *Homo,* but the jaw is chinless and very ape-like. The canine tooth is emphasized, but less so than in the true apes. It is not at all certain that the jaw and the cranium belonged to the same individual, although they fit each other. The insertions of the temporal muscle on the temple and on the lower jaw are said not to correspond in size. The jaw and cranium were first described as belonging to the same individual, then opinion swung to the belief that the jaw belonged to another species, more ape-like, or even to an ape itself, but the latter contention could hardly be allowed because of the comparatively slight emphasis of the canine teeth. Now general opinion seems to be swinging back again to regard the jaw as belonging with the cranium. If this be accepted the Piltdown man would be regarded as distinct from the species *Homo heidelbergensis,* to which we will next turn, and also from our own species, *Homo sapiens,* and must even be relegated to a more primitive genus *Eoanthropus.* More critical opinion, however, would still assign the cranium to a true man of much later period, perhaps to an ancient member of our own species, and the jaw to an ape-man intergrade. Very primitive flint implements, poorer than those of the Foxhall deposits, were found near the skull of *"Eoanthropus"* and are apparently to be regarded as of his manufacture.

Homo heidelbergensis, the Heidelberg man, was discovered near Heidelberg, Germany, in 1907. There is merely a lower jaw with its teeth. This man had no chin, being ape-like in this regard, but

the teeth are distinctly human. The jaw was found eighty feet below the surface in river drift sand of the middle Pleistocene period, say 300,000 years ago, the earliest reasonably certain date for man of the genus *Homo* in Europe or elsewhere. There were eolithic flints, flint fragments apparently used as implements, in the same stratum, and there were also many mammalian remains indicating clearly the middle Pleistocene period. Osborn* gives a list of the mammalian species represented in these deposits:

Heidelberg man,	the broad-faced moose,	the Auvergne bear,
an ancient elephant,	the red deer,	a wild cat,
the Etruscan rhinoceros,	the Aurochs,	Denninger's horse,
the Mosbach horse,	a primitive bison,	a wolf,
a wild boar,	a lion,	a beaver.
	the roe deer,	

Of these the Etruscan rhinoceros is very ancient and was already almost extinct at the time the Heidelberg man was in Europe. But the species of elephant and lion and the Mosbach horse definitely place the deposits in the middle Pleistocene.

The Neanderthal man, *Homo neanderthalensis* (or *H. primigenius*) was first discovered in 1848, in Gibraltar. In 1856, in a cave near Düsseldorf, Germany, a second find of the same species was made, and now we know about 20 complete or partial skeletons from central and western Europe, representing men, women and children. This species is pretty thoroughly known. The skeletons are associated with rough stone implements of rather good workmanship. Mammalian remains associated with them date the Neanderthal man during the cold climate of the last glacial period, say 100,000 years ago.

These men were of stout build and short stature, about 5 feet 3 inches or 5 feet 4 inches on the average. The legs were a little bent at the knee and could not be straightened, so that the men walked probably with an awkward shuffling gait.

The skull is of especial interest. The brow ridges are very heavy, much more so than in the Piltdown man. The jaw is massive and chinless, but the teeth are similar to those of modern man. The heads are large, with a brain capacity of from 41 to 53 ounces, the mean being 49 ounces, or the same as in the modern European, much larger than in the Australian today. This was a true

*H. F. Osborn, Men of the Old Stone Age, New York, 1915.

man, a member of the genus *Homo,* but very distinct from the species *H. sapiens* to which we belong. The species is now wholly extinct. Indeed we judge it became extinct about 30,000 years ago or earlier. At least two, and perhaps more, races can be recognized in the remains of Neanderthal man, the most primitive being the Gibraltar race.

The Neanderthal man was of high intelligence. He made good flint implements of the chipped flint type. He used fire, for we find hearths in his caves. He had developed family affection and believed in life after death, for the dead were carefully buried with implements of their finest quality. Women and children were buried with as much care and consideration as men.

In a recent lecture in Oberlin, Professor Breasted, the well known Egyptologist of the University of Chicago, described the burial habits of the "paleolithic" Egyptians, 4000 years before Christ, and spoke of them as giving the earliest indication of hope in life after death. Apparently this belief is a much more ancient human character, dating back seventy to ninety thousand years. Not only among the Neanderthal men, but also among the Cro-Magnons, say 30,000 years ago in western Europe we find clear evidence of family love and belief in life after death. We have found men, women and children buried with evidence of the greatest consideration. A Cro-Magnon infant body has been found interred in a mantle of perforated sea shells, greatly valued by the Cro-Magnons as ornaments. Women's bodies were laid in a layer of unperforated shells. The men were buried with crowns and chaplets and gorgets of perforated shells. Other ornaments as well as implements and food (?) were placed in the graves. There was deep family affection, and the position of woman was seemingly on a par with that of man. A curious burial custom among the Cro-Magnons was to paint the bodies before interment. It may indicate that it was customary to paint the bodies in life. This race had a highly developed love of color, as we will see later.

The Rhodesian man, *Homo rhodesiensis.* Within a year there have been published inadequate accounts of finding in South Africa a very primitive human skull and other bones. There have been a couple of brief articles in *Science* about this find and the *Atlantic Monthly** has an account by Dr. G. Elliot Smith, but these give only vague and unreliable data. We must await the account to be published by the British Museum where the bones are deposited. The

*April, 1922.

stroyed by the workmen. There was a complete skeleton, enclosed in a mineralized cast of the surface of the body. Now all that is left is an almost complete skull (lacking the lower jaw), a sacral bone, a tibia, the two ends of a femur and a small fragment of the upper jaw of a second individual. Many bones of other mammals, also very crude implements of flint and stone were associated with the human remains. Indeed the floor of the cave in which the human remains were disinterred was covered to a depth of twelve feet with bones of many animals, many of them knawed by hyenas, who evidently had used the cave as a den perhaps for centuries. These bones were encrusted with zinc silicate and well preserved. Indeed they were so impregnated with zinc silicate that they had been mined and put with the adjacent ore into the smelter.

In the skull of Rhodesian man the face is extremely prognathous (an ape-like character), but the naso-frontal suture is straight as in man and not angled as in the apes. The nasal bridge, like that of the Neanderthal man, is high (like the Greek nose). The brow ridges are more pronounced than in any human skull previously known, and they protrude laterally as in a gorilla. The cranium is low. In front it is very narrow, but behind it is very wide, so that the total brain capacity is large. Of the weight of the brain we have as yet no report. The attachments of the neck muscles at the base of the skull are greatly developed, indicating powerful neck muscles as in the Neanderthal man. The palate and the teeth are distinctly human and the wisdom tooth is reduced as in man.

Pretty clearly this being was much more man-like than the Javan ape-man, *Pithecanthropus*. Probably he will be recognized as a species of *Homo*. He seems even more primitive than the Neanderthal man, and seems more nearly related to *Homo sapiens*. The Neanderthal man seems a lateral branch of the human family, not in the line of ancestry of *Homo sapiens*. *Homo rhodesiensis*, while more primitive than *H. neanderthalensis* in many regards, is distinctly more like *H. sapiens* in some qualities and may be a nearer relative of our species, a very ancient relative, but still a relative nearer the direct line of our descent. There is little likelihood of being able to date these remains geologically. Even if they should be found to be comparatively recent, we would have to believe that this was due to this man having survived for a great period, as have original condition of the remains, of remarkable interest, was de-

so many African animals, like the elephant, the rhinoceros and the hippopotamus, which are part of a relict fauna from Tertiary times.

Homo sapiens. At least three distinct races of *Homo sapiens* are known from paleolithic times in Europe west of Russia. These are the Cro-Magnon race, the Grimaldi race and the Brünn race. These races differ from one another as much as do the races of men living today upon the Earth. There is also evidence of perhaps a distinct race preceeding the Cro-Magnons, with a culture more primitive than theirs and somewhat different. Of these earlier people we have no bones, merely their implements and their drawings. They have been called the Aurignacean race, being so named from a locality in France where their remains are found. It may be they were but early Cro-Magnons.

Of the Grimaldi race we have but two skeletons and one small carved figurine of a nude woman. The two skeletons, which are complete, are of a young but adult male and a female, and were found together in a grotto on the Mediterranean coast of France. This race was of short stature, about five feet two inches. The lower limb from the knee to the ankle is extremely long. The skulls show protuberant jaws. The nose was broad, the chin was weakly developed. The Grimaldis are perhaps related to the Bushmen of the present day. The greatly developed buttock region in the carved figurine found near the skeletons is a Bushman character. The race seems clearly Negroid. There is no indication that they ever obtained a real foothold in Europe. Their home was probably Africa, and it is unlikely that they penetrated beyond the Mediterranean coast of Europe. We have no way of dating definitely the remains of Grimaldis found in Europe, except by certain implements in the earth layer beneath that in which they were found. This evidence would place them in the period of early Cro-Magnon occupation of Europe, say 30,000 years ago.

The great race of central and western Europe was the Cro-Magnon race, named, like all the other ancient races, from the place where their first recognized remains were found. The Cro-Magnons flourished in western Europe in the late Pleistocene, say 30,000 to 50,000 years ago. They may have existed earlier in other localities, for they apparently came to Europe as invaders from the East. Their remains have been found from Wales on the west to the headwaters of the Danube on the east. Their chief remains, both anatomical and cultural are known from France and northern Spain. They were a tall race, the adult males, from 5 feet 10½ inches to 6 feet

4½ inches in height, being 6 feet tall on the average. They had long arms and the lower leg, from ankle to knee was long. The shin bone was very narrow and sharp-edged. The head was long and narrow, with the face flat, not prognathous, the cheek bones being high, wide and prominent. The nose was broad as indicated by the nasal apertures in the skull. The eye socket was higher than broad. The brow ridges were well developed. The cranium was long and narrow, and the brain weighed from 52 to 56 ounces, being larger than in modern man.

This great race was equal, or probably superior, to present European man both physically and in intellectual capacity. So far as we can judge the Cro-Magnons are today entirely extinct, though it has been suggested that the Basques of the western Pyrenees may be a weakened remnant of the Cro-Magnons. There is no real evidence for this, though the Basques live in a region where the Cro-Magnons abounded and the Basque language is somewhat different from all other human tongues today, being very primitive. The Basques do not have the great stature of the Cro-Magnons, nor the narrow shin bone, nor the very broad cheek bones.

The Cro-Magnons made good chipped stone implements and had numerous sorts for different purposes. They had bone awls and needles, ivory skewers and ornaments, flint-tipped spears and bows with which they used flint-tipped arrows; they had ornaments of shells and mammalian teeth, beads, bracelets and other objects of ivory and shell. They used fur clothing and apparently had huts of wooden frames covered with skins, or at least we find their drawings of what appear to be the framework of such houses. They were close observers of nature and were skillful in drawing, painting and engraving. They also made sculptured figures. The walls and ceilings of their caves in France and Spain bear their life-like and spirited drawings of many animals, earlier drawings being often overlaid by later ones, thus giving us something of the succession in their culture. The earliest are in outline in black. Later ones are often engraved or in color, (red, brown, black and several shades of yellow, all mineral pigments mixed in grease). Human figurines appear very early in their deposits, mostly figures of nude women, many of them evidently pregnant, indicating possibly religious feeling in connection with the reproduction of the race. In the later drawings and paintings are clothed women herding cattle, and men chasing wild animals with spears and bows. In the latest sculptures we find women with elaborately dressed hair.

The animals shown in their drawings are the larger animals of their time in Europe:—horse (2 species, Arabian and Celtic), reindeer, bison, red deer, wild boar, mammoth (2 species), rhinoceros (2 species), cattle (both cows and bulls), cave bear, lion, and salmon, also human grotesques, perhaps of ceremonial significance. It is curiously interesting to have, in the hardened mud in their caves, prints of the hands that made the remarkable ferscoes and sculptures. One is struck with the apparent mutilations common in these hands, as if the men led lives of adventure and danger.

The great stature of these men, their great brain capacity, and the character of their art and their craftsmanship, show a very superior race. Their burial customs, already mentioned, show their spiritual development to have been advanced.

The Brünn race was of low grade, but not so low as the Australians today. Their remains are found along the Danube river, in what was Austria-Hungary. We know about 24 badly fragmented skeletons which probably are to be assigned to this race. The first discovery was in 1891. They were a people of tall stature, but the skeletons are too fragmented to estimate the stature accurately. The chin was prominent, but the face was not prognathous. The teeth were large: the cheek bones were prominent as in the Cro-Magnon men. The neck muscles were powerful as in *Homo rhodesiensis* and *H. neanderthalensis*. The brain weight was about 45 ounces, a little less than the average European today.

These men are generally regarded as a lowly race of *Homo sapiens,* but some are inclined to place them intermediate between the Neanderthal man and modern man. Their culture was equivalent to that of the Cro-Magnons in their early period. Their skeletons are associated with ornaments of shells, mammalian teeth, perforated stone disks and bone. Two ivory figures, both male, have been found.

These people probably came to Europe from the East at a time when the Cro-Magnons were established in western and central Europe, about the close of the Glacial period, say 20,000 years ago.

We have some remains of what were perhaps several other races of man in Europe, perhaps half a dozen others, but the relations are still obscure. We will not follow further the matter of the early races of men.

Perhaps we should say a few words as to the place of man's origin. His nearest known relatives, the anthropoid apes and *Pithecantropus,* inhabit tropical and subtropical regions in Asia and Africa.

Man probably arose in some region with a similar climate. *Pithecanthropus* lived in Malaysia. Eastern or southern Asia, perhaps the southern side of the Himalayan or Caucassus highlands, is man's most probable place of origin, though we may find evidence of an African origin. Soon after his appearance he probably spread to all suitable parts of the eastern hemisphere. We have not yet determined the time of his entrance into America. The fact that most of his domestic animals are of Asiatic or African origin seems significant. Those of probable Asiatic origin include:—the ox, sheep, goat, pig, horse, camel, reindeer, elephant, fowl, pigeon, goose, peacock, ostrich. Of probable African origin are the ass, cat, greyhound, mastiff, guinea-hen. Most or all of these from both continents have been domesticated for thousands of years.

Man in America is a most interesting subject, but its discussion would more naturally fall with a treatment of the growth of human cultures. Time compels us to omit all this, and anyway it is not appropriate for a zoologist to attempt to lead a discussion which passes far beyond general anthropology into archaeology.

Having discussed the origin of man, we will go on in the next lecture to the discussion of his future and the question whether he can control and guide his future development. The purpose of this first lecture has been merely to present some well known facts* as a background for the discussion of man's future.

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*Most of the data as to early races of man are taken from H. F. Osborn's "Men of the Old Stone Age," a most interesting volume.

MAN'S FUTURE; CAN HE CONTROL IT?

In the last lecture we discussed in outline man's origin and the factors operative in his evolution. Let us in this part of the discussion turn our eyes to the future and see if we can discern anything of what is ahead for men.

At least one, possibly four, prehuman genera are known in the family *Hominidae* (Fig. 1). *Pithecanthropus* is certainly prehuman, as is also "Eoanthropus" if we accept the Piltdown jaw and cranium as belonging together, but this is doubtful. Of the Foxhall man we have no skeletal remains and can not judge of his genetic relationships. The Rhodesian man is as yet inadequately described, but he will probably be assigned to the genus *Homo*. At least three species of early man are known, *Homo heidelbergensis, H. neanderthalensis* and *H. sapiens, H. rhodesiensis* being probably a fourth species more ancient than any of the others. If the Piltdown jaw and cranium do not belong together, then the cranium probably represents a true man, perhaps even a race of the species *sapiens*. Foxhall man must have been of good intelligence, judging by the character of his flint implements. Heidelberg man was in a lower stage of culture. *Homo neanderthalensis,* during the, say, 75,000 years of his occupation of central and western Europe, showed great range of development, from the low grade Gibraltar Neanderthals to the much higher grade Belgian Neanderthals. In their implements and in their burial customs we have indication of considerable intelligence. We find evidence even of a belief among them in life after death, their dead being supplied in the grave with implements.

HOMINIDAE

Pithecanthropus
  P. erectus

Hesperopithecus
  H. haroldcookii

"Eoanthropus"
  E. dawsoni

Homo
  H. rhodesiensis
  H. heidelbergensis
  H. neanderthalensis
    Gibraltar race
    Belgian race
    (perhaps others)

H. sapiens
Grimaldi race
Brünn race
(Aurignacian race)
Cro-Magnon race
(Picts, Scots, Celts)
Mediterranian race
North Europeans
Central Europeans
(Several others in Europe and many in other parts of the Earth)

Fig. 1. Genera and species of the human family

It is noteworthy that one of the earliest, possibly the earliest, of the present human species, *Homo sapiens,* to appear in Europe, say 30,000 years ago, were, so far as we can judge, the finest type of man yet known. These were the Cro-Magnon race.

The brute-like *Homo heidelbergensis* disappeared from Europe before the appearance there of *H. neanderthalensis.* The Neanderthal man persisted probably until about the time, or perhaps after the time, of the invasion of western Europe by the Cro-Magnon race of our present human species. Possibly the Neanderthals were exterminated by the Cro-Magnons.

The Cro-Magnons disappeared in their turn, but not owing to the competition of any superior race, for there have probably been no men superior to the Cro-Magnons. Two far inferior races, the Grimaldis and the Brünners, were in southern and eastern Europe during the Cro-Magnon period, but they did not supplant the Cro-Magnons.

Other races of *Homo sapiens* entered Europe from Asia:—the Aurignacean*, before the Cro-Magnons; the dark complexioned, long and narrow headed Mediterranean race; the light complexioned, long-headed north European type, the dark complexioned round-heads of central Europe. It is possible that some of these came before the Cro-Magnons had become extinct, and the extinction of the Cro-Magnons may have been accelerated or even chiefly caused by competition with these later races. On the other hand, the Cro-Magnons may have been pretty well gone before these immigrants arrived. The Picts and Scots and Celts are a puzzle, but they are probably a remnant of an early European invasion between the Cro-Magnons and the present southern, middle and northern Europe races. The Danubean Brünners were in the path of entrance of the invaders from

*The Aurignacean culture may belong to a distinct race or to the early Cro-Magnons.

the east, and their extinction may well have been accelerated by struggle with the invaders.

Two points of special interest appear:—1) That there have been numerous races of men in Europe, of which probably few now survive to have any share in the present European population. 2) One of the departed races, the Cro-Magnons, were apparently the equals or the superiors of present European man.

To the numerous extinct and living races of man in Europe must be added at least five races of African men—the Rhodesian man, the Pygmies, the Bushmen, the Egyptians, and at least one race of the larger Negroids.

When Asia is explored she will probably contribute a larger number of extinct and living men than either Europe or Africa; and Australasia, the Pacific islands and America add at least four more.

During the glacial period and the early Alluvial era which followed, races in Europe disappeared one before the other, instead of commingling. More recently the immigrant groups from Asia have fused to such a degree as to make racial distinctions difficult today in Europe. Early conditions in Asia, Africa, Australasia and the Pacific are too little known for comparison. We know little of early man in America, but we do know that the agricultural cliff and pueblo dwellers, though very much higher in their culture than the plains Indians, were unable to stand before these bloodthirsty hunters and are today but a pitiful remnant compared to their numbers during the height of their prosperity. In Pajarito Park, near Santa Fe, within a half circle of only 20 miles radius, there are said to be the remnants of over 1500 cliff-chamber and pueblo villages, some of the largest of which are said to have contained up to 2000 rooms each. These villages were not all occupied simultaneously, but, allowing for many abandonings and rebuildings, there must have been here a population of several hundred thousand persons all supported by the cultivation of irrigated fields along the Rio Grande. These people were no mean architects and were able craftsmen in wood, stone, cement, pottery, basketry and clothing. They were skilled agriculturists, had carried domestic arts to a high degree and had developed elaborate religious ideas and ritual. They had written communication by conventionalized signs. They were highly civilized, a kindly and mild-mannered people who had learned much of the fine art of living. But before the onslaughts of the savage plains Indians, a people culturally far below them, they succumbed and became almost extinct. And they are not the only people consider-

ably advanced in culture who have given way before these fiercer tribes. The Mound-Builders are wholly extinct. Here in America, as in the case of the Cro-Magnons of Europe, the more cultivated gave way before the more brutal.

Once, when in Santa Fe, I saw a thing which made the prehistoric men of America live again for me. In the museum there, are many pieces of pottery and other things from the excavations of the circular house at Mesa Verde, a great peublo ruin. Among these was a mummified body of a little child found beneath the hearthstone in one of the rooms of this great colony house. The body was carefully mummified, with knees folded against the chest in the regular way and lying upon its right side, as always, and with it were a number of utensils. Among these were half a dozen tiny toy bowls and jars in shape like the usual cliff-dweller pottery, and on these little dishes were the finger marks of the little child. This child mummy, with the toy dishes, she herself had made, buried beneath the hearth in the family room, bring back to us these ancient people with their family love alive and warm and their faith in the continued life of their dead. All these ancient extinct people were real, were men like ourselves. It isn't fair to think of them and their culture as mere bones and arrow-heads. They lived and labored and loved and fought and died even as we.

Let us keep these two thoughts in mind:—1) the great number of races of men there have been upon the Earth, and 2) the fact that the more advanced race has not always shown the greater ability to survive.

Man was a hunting animal during the period of his early divergence into numerous races. It has been estimated that it requires over 5,000 acres per family to support a people who live by the chase,though of course this varies with the condition of the region. Small and scattered groups were characteristic of this early period of man's evolution into distinct races. The complete or comparative isolation of the different groups of men in their several regions must have been a very important element, allowing divergent evolution in the several groups, intermarriage between groups not swamping the beginnings of divergence. Homogeneity was not maintained by intermarriage. This isolation was apparently an essential factor in the origin of diverse human races.

Man diverged, then, in his evolution, aided by the isolation of his scattered groups, numerous human races resulting. In the

competition that arose between these races, one race after another succumbed and became extinct. In the same region race after race was exterminated probably by the invasion of the successive, competing hordes. Man's evolution seems to have been upon the principle of substitution of one race for another. The Heidelberg man arose and died. The Neanderthal man succeeded him, spread over all of Europe except perhaps Russia, evolved into several races, but in the end wholly disappeared as the Cro-Magnon and Brünn races came on the scene. The Cro-Magnons and the Brünners in their turn died out. Substitution of one race for another was the fashion in man's early history.

Later, as the so-called historic period dawns, we find evidence of another principle entering the field of human development. Slavery appears, a great advance. The conquering invader, instead of supplanting the native, retains him as servant. Probably at first only the women of the conquered tribe were allowed to live, but even this was enough to effect the mingling of the two groups, conquered and conqueror. Apparently, as in early England, or still more in ancient Egypt, this commingling of different racial and tribal stocks produced a superior people. But time after time these hybrid peoples of finer strain and higher culture became a bit weakened by their softer living and were conquered in their turn by a new invader. But the new invader, like those that preceeded him, was destined himself to be absorbed. This fusion was very complete.

Such racial fusion was aided also by the very betterment of stock which the fusion caused. As the improved people advanced to greater world prominence, they drew to themselves by commerce, or as conquered slaves or in other ways, men from all the neighboring world. The early Egyptian skull has a clearly defined Egyptian complex of characters. But as ancient Egypt came to world dominance, we find more and more admixture of skull characters from other stocks, Ethiopian, Babylonian, Medish, Persian, Assyrian, Syrian, Phoenician, Minoan, until in the period of her greatest power a pure Egyptian skull could hardly be found. This commingling of racial and tribal stocks was a new principle replacing the former principle of extermination and substitution. In the world's centers of dominance, Egypt, Rome, England, America, a more and more composite type of men arose. Yet still, during the several thousand years of growth of this practice of fusion, there remained, in the remoter parts of the Earth,

races and groups which retained their comparative isolation:—the Australoids of Australia and Tasmania, the Negroids of Africa, the men of the Pacific islands, the Esquimaux, the remoter tribes of Siberia, the several groups of men in early America. Isolation was still operative to preserve some of the races of men from destruction by competition and from fusion with other races.

But the period of the possible preservation of any race of men free from intermingling with other stocks is now passing. We are entering an anthropological, an evolutionary, period in which will occur complete fusion of such races of humankind as are able to persist at all. All races of men are coming together. Social interdependence is destroying spiritual isolation. Commerce, industry, science, literature and the arts, are no longer national. They are cosmopolitan. The perfecting of land and water transportation, and especially of air navigation, is annihilating distance. Soon anyone in America, wishing to call on his friend in China, can step into his aeroplane and dine the next day on swallow's nest soup and beche-de-mer with his Chinese friend. We shall soon be living every one in every one's else back yard, the world around. When this comes, and speaking in terms of geological or evolutionary time it is already here, when this comes the whole trend of nature will be toward complete amalgamation of all such races of men as are able to survive. Human racial diversities arose under conditions of group isolation, and these racial diversities, I believe, cannot be maintained now that isolation is about to become a thing of the past.

What then of man's future from this point of view? If the ultimate human race is to be highly composite, what will be its character? In the past has amalgamation been beneficial or hurtful in its effects? Are some present day human stocks likely to die out, while others will persist? What stocks are likely to survive? What ones seem destined to extinction? What contribution to the ultimate race is each surviving and commingling race likely to make? Can we control this phase of the matter, securing the extinction of races we deem undeserving, and ensuring the perpetuation of the well esteemed strains in the new race? Perhaps we should pass by all of the far-reaching questions listed above and get to the problem of eugenics. But I think I must delay a few minutes over three of these questions.

Will some human races or stocks perish and others survive? Apparently this will be so. The Tasmanians have become wholly

extinct, though well treated on the whole by their immigrant English neighbors, better treated by the English than formerly they were treated by themselves. The Australian race seems to be going the same road. This may or may not be due to contact with the superior race. Races have disappeared apparently without human competition, for example the Heidelberg man. Many species of animals have disappeared from causes inherent in themselves and not from increased outside pressure. Species and races, as well as individuals, sometimes develop a sort of evolutionary hardening of the arteries, a stiffness and unadaptability which may cause their extinction. It seems highly probable that some other human races will go the way of the Heidelberg man, the Rhodesian man, the Neanderthaloid group, the Grimaldis, the Brünners, the Cro-Magnons, the Mayas, the Mound-Builders, the Tasmanians and the Australians.

We have yet to find the first people who have successfully withstood the degenerating influence of civilization. One after the other the peoples have risen into civilization and have then gone down. Even speaking only of *Homo sapiens* and not of his forerunners, of other species and genera, we may say that for the last 30,000 years such rise and fall of races and peoples has been the absolute rule to which thus far there has been no single exception. The history of man from the beginning has shown the supplanting of one race after another, of one people after another. As Edward Carpenter put it years ago, no people which has acquired the disease civilization has ever made a good recovery. There have been in all cases the same prodromal symptoms, the same rise of fever, the same culmination in luxury, and then the patient dies or is left permanently weakened. No people has ever come up again after having had this sickness called civilization. No people, however important and splendid their perihelion, has ever risen a second time to the heights, has ever made a second major contribution to the world.

This thought is emphasized by a glance at the history of human culture. This matter indeed seems to be largely cultural and not racial. For the moment we are interested in the other, the racial, point of view. We have seen the Tasmanian disappear, and the Australian start upon the same road to the grave. But there are other stocks which seem to have great adaptability and absorbing power. The Chinese have absorbed invasion after invasion; so have the English. The Japanese are less given to

assimilation, and on this account they are perhaps less likely than the Chinese to make a future major contribution to the ultimate human race. The Negro race assimilates other stocks, more readily than does the American Indian. The study of the races from this point of view is of much interest.

Another interesting point of view in the study of human races is expressed in the question "What contribution to the ultimate complex race will likely be made by each of the present races which shall survive?" Will the Chinese give their stability as a fundamental quality upon which to rear the culture of the ultimate race? Will they contribute their unsentimental, matter-of-fact practicality? Will they give their common sense preference of peace to war? Can these be had without accepting their selfish individualism and lack of patriotism? Can the Negro contribute his beautiful optimism even in the midst of sad mistreatment without giving also his tendency to irresponsibility? Can we gather what we choose and reject what we wish? Can we have the dignity of the American Indian, the Englishman's sense of fair play, the Scotchman's canniness, the Irishman's clever likeableness, the artistic sensitiveness of the Japanese, the South-German's philosophical quality, the Prussian's organizing ability, the Russian's ideality, and the other good racial qualities, without taking, in each instance, the accompanying qualities which are less desirable? These are problems in eugenics which give one pause.

Note, please, one implication in all these questions:—It is clear that in the amalgamated race there will be a far larger range of qualities from which selection, either natural or artificial, may be made.

Has partial amalgamation of the races of men, so far as it has already occurred, proven wholesome? The light-complexioned, dolichocephalic Prussian is poor stuff in his spiritual qualities. So also is the dark-complexioned, narrow-headed South Italian, the purest representative today of the Mediterranean race. But the two when fused in northern Italy and combined with the middle Europe round-headed race make one of the world's most desirable types. The French are a complex people in their origin, and they make hopeful world citizens. The English are, if anything, still more complex racially and are unsurpassed today. In Hawaii, where European, Asian and Pacific races have met without any overemphasized race pride or race-exclusiveness, we find perhaps the fairest modern experiment in race amalgamation, and its resultant human types are

seen to be good. The Chino-European is one of the finest of men; so also is the child of English-Hawaiian marriage. The Chinese-Hawaiian combination is a good one. The good character of the offspring of English-Japanese marriage is well known in Hawaii and elsewhere. English-Negro mixture, in spite of prevalent prejudices in this country and South Africa to the contrary, must be admitted to produce men of a worthy type, as does also English-American Indian fusion. Remembering that it is chiefly the less cultured individuals of contiguous races which mingle, while the more cultured remain apart, it is indeed surprisingly convincing to observe historic and recent experiments in amalgamation and to see how generally good have been the results. It seems to be evidenced that highly complex races are at least as good as are purer stocks, if indeed they are not considerably better.

Before leaving these far-reaching questions, it is well to note that our studies of hybridization are inadequate. As a suggestion of the probably large series of unexpected results likely to come from further study of these problems, note one fact in connection with Egyptian skull characters, not mentioned above, when reference was made to Egyptian skulls. We said* that the early Egyptians showed a distinctly Egyptian complex of skull characters, but that during the period of Egyptian world dominance there had occurred such fusion with other peoples that it was hardly possible to find a single skull of the pure Egyptian type.** But the modern Libyan, now long isolated, has reverted again to the ancient Egyptian skull character. This is an astonishing thing and it suggests great caution in conclusions as to the results of amalgamation among human-kind.

But how about race betterment and control of human development? We must come down from contemplation of these broadest of racial problems and study for a bit the methods of control over human betterment and ask ourselves if beneficial results are practically obtainable by these methods.

First we must refer briefly to certain principles of inheritance. As we saw yesterday, certain qualities are heritable while others are not. Qualities born in the individual, inherited from his parents, may be passed on to his child, but qualities developed in the individual during his own life and not appearing in him because of inheritance from his parents will not be passed on to his chil-

*Quoting unpublished statements from Professor T. Wingate Todd.

**Of a thousand skulls examined from this period not one was pure Egyptian.

dren. Inheritance is thru the germ cells and characters acquired by the individual during his life are not transmitted thru the germ cells to the next generation. Let me quote from a former exposition of this subject:*

"It is well known that both plants and animals change constantly during their whole lives as a result of the effects on them of the environment, and thru the reaction upon themselves of their own activity. Use strengthens a muscle and disuse allows it to waste away. Some have claimed that as a matter of course any such effect produced in one individual will be handed down to his descendants, and that here we have a most potent cause of evolution in the transmission to the offspring of the modifications produced in the parent. Favorable and poor conditions of nutrition produce great effects on individual plants and animals; so also do climatic conditions. Are these effects upon the individuals of one generation transmitted to their offspring of the next generation? If so, this inheritance of parental modifications must have the greatest influence upon evolution. The matter needs careful scrutiny.

"The germ cells in the body are the only ones which have any descendants in the following generation. The whole body of the offspring comes from two united germ cells—an egg from one parent and a spermatozoan from the other parent. No bone cell, or muscle cell, or brain cell, or any other body cell, in either parent, gives rise to any part of the offspring. Weismann has used the term *soma* to include all the cells of the body which are not germ cells, that is, the muscle cells, bone cells, nerve cells, etc. This distinction between the germ cells, from which the young are derived, and the *soma* cells, which have no offspring in the next generation but are destined to die without issue, is a very important one, and upon it must be based the discussion of the inheritance of parental modifications.

"As a fertilized egg is developing into an adult organism it divides into a number of portions called blastomeres, certain of which will form the germ cells of the new organism, while the remainder will become its *soma*. The germ cells of one generation are thus derived directly from the germ cells of the preceding generation.

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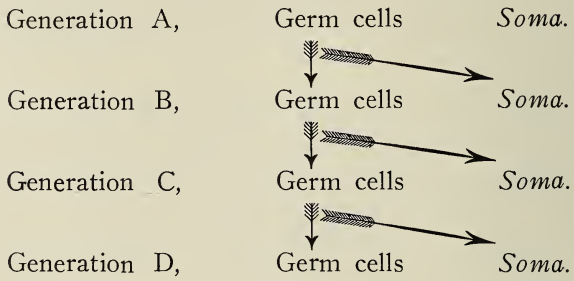
*Metcalf—Organic Evolution.

"The accompanying diagram may make the matter clearer.



In the diagram the lines indicate lines of descent. Both the germ cells and *soma* cells of any generation are derived from the germ cells alone of the preceding generation. The *soma* cells have no descendants. They die without offspring. Moreover no germ cell has ever been anything but a germ cell. It has never been a muscle cell or a nerve cell. Muscle cells, or any other differentiated *soma* cells, do not change into germ cells.

"The modifications of the *soma,* to which we must refer, are of two sorts, first, those produced by the effect of the environment upon the organism, and, second, those resulting from the reaction upon itself of the activity of the animal or plant. Let us illustrate each.

"The direct effect of food and climate is often of such a nature as to produce changes in the individual. For example, plants, if grown in a warm, moist climate and in rich soil, may be larger than if grown under less favorable circumstances. Will these plants have larger offspring as a result of inheritance of the increased size? Is the direct effect of the favorable environment (namely, increased size) handed down to the offspring? If the offspring be large, as they probably will be, is their large size due to the fact that their parents became large under the favorable conditions in the midst of which they grew, or to the fact that the offspring themselves grow under the same favorable conditions as their parents and so, for this reason, are large? Is there at all any inheritance of increased size? How can we tell? We have at least one test we may apply. When plants are taken from unfavorable conditions and are grown under the most favorable conditions, do they only gradually assume increased size, or are those of the first or second generation as large as those of the third or fourth or tenth or fiftieth? If parental modifications be inherited, the plants of the later generations should be larger than those of the earlier, the inherited effect of increased size accumulating

from generation to generation. We do not, however, find this to be the case. It is not by this method that large plants have been produced by the breeders. They have been produced by selecting the larger plants to breed from and continuing this process from generation to generation, the same process of selection that goes on in nature.

"Let us look at an illustration of the reputed inheritance of the effects of use and disuse and see if we can accept this influence as a factor in the evolution of animals and plants. We have referred to the increase in size that follows the use of a muscle, and the decreased size that results from its disuse. Are these effects inherited by the offspring? Does the man who is strong because he leads an active life have stronger children than he would have if he led an inactive life? Notice this:—The fact that he does develop strong muscles as a result of exercise shows that he must have had an innate capacity for developing strong muscles by exercise. If he inherited from his parents the ability to develop strong muscles under the stimulus of an active life, his offspring in turn will inherit from him the same ability. A blacksmith has a son who becomes an office clerk and takes no exercise. Does the son have any stronger right arm than he would have had if his father had been an office clerk? Of course, the son will have the same capacity for developing a strong arm that his father had before him, but will the fact that the father developed this capacity and became strong give the son any greater strength than he would have had if the father, thru inactivity, had allowed his capacity for strength to lie undeveloped? There is no carefully scrutinized and carefully recorded evidence in favor of an affirmative answer.

"How can we test the case? It is very difficult. Experimentation has failed to show inheritance of the effects of use and disuse among plants and animals, and we have no evidence in its favor except its apparent plausibility. But when carefully scrutinized, is it as plausible as it seems at first thought? How can the use of the biceps muscle in the arm of the parent so affect the offspring that he will be not only stronger, but stronger in the biceps muscle, the particular part affected in the parent? The child is not the child of the biceps muscle of the parent, but the child of the germ cells of the parent, and these germ cells have little to do with the parent's biceps muscle. They are separated by a great space and they do not, so far as we know, have any special mutual relation. If the increased strength gained by the biceps muscle of the parent is to be handed down to the offspring, the increase in size in the parent's biceps must in some way produce

an effect upon the parent's distant germ cells from which the child is to develop; and this effect upon the germ cells must be of so particular and definite a kind as to produce not a general effect upon the offspring but a particular effect, namely, greater strength, and not only greater strength, but greater strength in a particular portion of the body, the biceps muscle of the right arm. The hypothesis, apparently so simple at first glance, is seen, when scrutinized, to involve a connection between muscle cells and the distant germ cells so intimate and so definite as to be marvellous beyond almost any known fact of biology. No greater assumption has ever been made as the basis of any biological theory, and it is pure assumption, for we have no evidence of any such mechanism connecting muscle or nerve or bone cells with the germ cells."*

We see now the meaning of the terms acquired characters, germinal variation and somatic variation, mentioned last evening. *Acquired characters* are characters that rise in the *soma,* independent of the germ from which the individual came. They are not inborn and will not be transmitted. They are characters like the strong arm of the blacksmith, acquired thru exercise. Any cell of the *soma* may change its character under some stimulus that comes to it during life. These changes, involving the *soma* do not affect the germ and are not transmitted to offspring. On the other hand, if the germ cell itself changes its character, there may be produced new characters, mutations, in the offspring arising from this germ cell. Such *germinal variation* is the cause of mutant characters appearing.

With this sharp distinction in mind, differentiating heritable qualities from non-heritable qualities, we see at once that good training of the individual does not affect the inherited character of his child. Schools and churches and physicians, preserving and training him who is to be the parent, will not produce effects which can be inherited by his child.** Eugenics is not to be secured in this way. What, then, is the eugenic method? Animal and plant breeders have produced their astonishing results by distinguishing between individuals with inborn desirable character and those whose natural qualities are less desirable, and then breeding from the desirable sort. And the methods in human eugenics are not different.

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*Guyer's recent work upon toxic serums is suggestive in this connection, but very much more study must be given before it can be regarded as significant.

**Though they may affect his choice of a wife and so affect his children.

There are two phases of the problem of eugenics—the scientific phase and the social phase. We must think a few moments of each. First, the scientific problem. The scientific problem of breeding a better race of men itself shows two distinct subdivisions. There is the problem of eliminating the unfit, not allowing them to have children, and in this way raising the average of the next generation. This would bring the average of mankind up to nearer its present best. This does not involve any evolution. It is merely pruning off the unworthy branches and leaving the rest of the tree. The other division of the scientific problem is that of raising the present best among men to a still better, improving the best. This involves true evolution and is a very different problem from that of merely pruning off the undesirable branches of our human tree.

In both its divisions the scientific problem has its difficulties. One of the chief of these lies in the fact that it is usually impossible to tell without extensive experimental breeding which of the qualities shown by any individual are of the heritable sort and which are of the acquired, non-heritable kind. A man at maturity and ready for marriage is a complex compound of the heritable qualities with which he was born and of innumerable modifications of these qualities that have been produced in him by his reaction to his environment and training.

Imagine identical twins in a highly cultured European family, twins originating, as is frequent, by the separation of the first two cells arising from the fertilized egg and the subsequent independent development of each cell into a wholly normal child. The heredity content in each would be the exact duplicate of that in the other. From the point of view of inheritance they would be really identical. Let one of these children be brought up in his father's European home, but let the other be taken at birth and placed in a savage family in Africa. By the time these twins had reached manhood and were ready for marriage, could even the most skilled zoologists and psychologists, who did not know their true origin, realize that each would give to his children exactly the same inheritance that the other would give? Without controlled experiments, lasting thru a number of generations, including both control of matings and control of training, one cannot tell what qualities of an adult individual are heritable and what not so. Without such experimental breeding, one who wishes to eliminate evil qualities from the next generation would have to cut out from marriage all those whose adult qualities were undesirable, though in doing so he would be cutting off many whose heritable qualities, at present obscured, would, when they appear in the children, prove to be

good. One would have to slash vigorously and cut off all whom he suspected of being hereditarily unsound, though many of them might be only secondarily undesirable, that is, undesirable at present because their good inheritance had been distorted by evil environment, evil training, evil living. To do this vigorous pruning is perfectly possible and it would result in a rise of the average quality in the next generation. We will return again to this matter when discussing the social aspects of eugenics. As to this part of our scientific problem we may now say that we can get results by sufficiently drastic proceedure, cutting out the really unfit and also the seemingly unfit who really are hereditarily sound. This is what we may call negative eugenics, getting rid of the undesirable.

The second division of the scientific problem of eugenics is the matter of raising mankind above its present best. This, in the fullest development, involves true evolution, the bringing into being of something as yet unattained among men. Is this possible? We could improve the average. Can we improve the best? Of course, future men, better than today's best, might be secured in either of two ways: First—It is scientifically possible to secure new and better combinations of good qualities already found separately in different individuals. This is recombination, not evolution. This has been done by plant and animal breeders. There used to be two breeds of tobacco plant, one breed with very large leaves, and another breed with very numerous leaves. One keen grower crossed these two breeds and among the offspring found some plants which combined the two qualities, many leaves and large leaves. Breeding from these, he established a stable breed characterized by both large and numerous leaves. Second—It is scientifically possible to watch for the appearance of new mutations of a desirable sort and to perpetuate them, breeding them into a better breed of men. Some decades ago there appeared as a sport, in a herd of cattle, one male which had no horns. This hornless, or "mooley" quality has now been crossed into almost all of the more valuable breeds of cattle.

To get a race of humankind with new and finer qualities than are found today even in the best of men, three things are necessary, so far as the scientific aspects of the problem are concerned. First, there must be among us men who show, from generation to generation, new mutant qualities of the heritable type and of a desirable sort. Second, we must be able to recognize these new and advantageous mutations, in spite of their being obscured in that confused complex of inborn and acquired characters of which every individual

consists. Third, we must be able to control the marriages of the individuals who show the advantageous mutations, if we are to avoid swamping these good qualities by crossing their possessors with poor stock, if we are to secure the perpetuation and increase of the good qualities in succeeding generations.

We said, first, that there must be advantageous mutations to deal with. Is man mutating today? He has mutated in the past, otherwise there would never have arisen so many species and races and so many individually different men. There seems no reason for thinking that mutation has ceased among men, but we can tell with certainty only by breeding experiments. It is true that different species of animals and plants differ in the prevalence of mutation among them. The great diversity seen among fowls, for example, shows that they have mutated in the past. On the other hand, geese and Guinea fowl have developed almost no diverse breeds, because they have not been mutating during the more than three thousand years they have been domesticated. Among plants we find, on the one hand, highly mutant species like the wild *Brassica oleraccea* of western Europe, which under domestication has produced the cabbage, kale, Brussels sprouts, cauliflower, kohlrabi and the Swedish turnip, all from one wild ancestor; and, on the other hand, we find species like the common turnip, which has never mutated enough to allow the development of strongly diverse domesticated breeds. But the great diversity of species, races and individuals among men seems to show clearly that man is a chicken rather than a goose, a cabbage rather than a turnip. The diverse material for selective breeding to choose from is almost surely present, and in the amalgamated race of the future there will be present still more diverse qualities.

We said, in the second place, that we must be able to recognize the advantageous mutant qualities in order to be able to select and breed from individuals showing them. This can be done only by experimental breeding directed to that end, for only carefully controlled breeding experiments can enable us to determine whether any quality noted is of the heritable or non-heritable type. Such analysis thru controlled breeding is, of course, scientifically possible though difficult, for man is a slow-breeding species, giving but one generation in forty years (adult to adult), while *Drosophila*, the animal chiefly studied by geneticists, gives a generation every nine days. The social aspects of such controlled breeding we will discuss soon. This control over marriage was the third thing we named as essential to success in breeding future men with qualities better than the present

best. So far as physical qualities are concerned this is scientifically possible. But it is a question whether we can secure spiritual improvement thru marriages arranged to that end. It is altogether possible that the method would involve doing such violence to man's spiritual instincts and feelings as to prevent success. This we will treat further when discussing the social aspects of the problem, merely noting now that the scientific problem of bettering spiritual qualities by breeding controlled to that end may have insuperable difficulties.

Now as to the social phases of the problem of eugenic breeding. First, as to negative eugenics, the elimination of the unfit from marriage. This probably is possible to a considerable degree, though difficult because of our inability, without controlled experimental marriage, to distinguish between heritable and non-heritable defects. Take feeblemindedness as an example. A large proportion of feeblemindedness is due undoubtedly to syphilis (either pre-natal or acquired), to alcoholism (either pre-natal or acquired), to hookworm, to diseased tonsils and adenoids, to impacted teeth, to pus infections of various sorts, to vascular thrombi (blood clots) due to accidental injury or infection and producing degeneration in portions of the brain, to brain hemorrhages from incidental causes, or to many other things of a secondary nature, not resulting from heredity. It is probably well within the limits of truth to say that apparently not more than a quarter of the cases of feeblemindedness are of a heritable type. But we can by no means always distinguish in any individual between the heritable and non-heritable types of feeblemindedness.

Shall we then debar all the feebleminded from marriage, though at least three-quarters of them have wholesome heredity quality in spite of the adventitious feeble mind? Why not so debar them? If the feeblemindedness is at all extreme they are at least socially unfit, if not hereditarily unfit, for parenthood. Children born into families where even one parent is feebleminded will likely not have such training as will fit them best for wholesome life and successfully guide them into such life. Parenthood is not an inalienable inherent right. Society as a whole, and not the one individual, should chiefly be considered. I favor debarring the feebleminded from marriage, and from parenthood outside of marriage, as an immediate preventative measure against race deterioration. But I favor even much more earnestly a most thorough-going study of the problem of inheritance of feeblemindedness and of other mental qualities, in the

hope that we may in time get such adequate knowledge of the inheritance of all these mental qualities, good and bad, as will give us a reliable scientific foundation for social proceedure. Where we now spend dollars in study of this problem we should spend thousands. In connection with these and other sorts of undesirable characteristics, physical, mental and moral, eugenics may well be practiced to a considerable degree, in part voluntarily, but in some cases under compulsion.

How about positive eugenics in its social aspects? Can we study human individuals, choosing out the ones that seem to be of especially desirable quality, and then bring these desirable men and desirable women together in marriages arranged with a view to the eugenic character of the children? This seems a pretty raw procedure, but let us not reject it without any consideration. As a matter of fact what are the bases of marriage among men of different sorts? In some types of savage community the woman is purchased largely as a working slave, to perform the domestic labor. Among Mohammedan peoples the purchase is often, perhaps usually, on the basis of physical beauty and the satisfaction of physical passion. Marriage for the sake of well born offspring would be better than either of these two sorts of marriage. In Japan and on the continent of Europe, marriage is less a matter of individual choice than of family alliance. The heads of the families involved arrange the marriage, and not on the basis of love between the principals in the marriage, but on the basis of wealth or social position. Should wealth and social position take precedence over wholesome children as a decisive criterion in marriage? It is in America and Britain chiefly that we find marriage contracted by the individual man and individual woman on the basis of love. To us this seems far more beautiful than marriage for social reasons. But, as a matter of fact, are American homes happier than homes in France or in Japan? Is the atmosphere of the American home more beautiful and more wholesome for the children than the atmosphere in the French or Japanese home? I do not know. I am not familiar with French and Japanese homes. Is it germane to ask in this connection whether divorce is more prevalent in America or in Japan and continental Europe? But it does seem as if nothing could be so valuable a foundation for a home as is that peculiarly beautiful attraction between a man and a woman, which we call love, a thing which has its primal roots in the physical, but which is suffused to its depths with the most beautiful spiritual feeling.

Successful breeding of men better than the best today, and this is the goal in positive eugenics, is not possible without controlled marriage based upon criteria of good heredity. It is conceivable that, say, the Japanese should catch the idea of emphasizing eugenics above other considerations in arranging marriage. If they should act upon this principle, would they in time rear a race which would outclass other races which continued along the present lines? Many considerations are involved, too many for treatment tonight, but they are interesting to puzzle over.

The time has come to close our discussion. What shall we say in closing? What summary conclusion may we reach? Is there any socially practicable procedure, desirable for its wholesome physical and spiritual results, looking to eugenics, looking forward to a day when invalids and imbeciles and coarse and evil-minded men shall be rare, and vigorous bodies, keen minds, and honorable, sensitive, beautiful spirits shall characterize the human race? Yes, there is much that may serve this end. Looking into the future, I see the day when the most carefully preserved records, among the state archives, will be, not title deeds to lands, but human records, giving in careful scientific statement the character of each individual for many generations, such a statement as will enable the intelligent searcher to tell much of the real hereditary quality of the individual investigated. I look to the time when the chief attraction in marriage will be a character compounded of wholesomeness of body, keenness and soundness of mind and beauty of spirit, and in that day I imagine that no worthy individual would desire marriage with one whose inheritance record did not give likelihood of worthy children. I see in imagination the pulpit, the school, the drama, poetry, the novel and all literature, holding up before men and building up in men such ideals as will make wholesomeness and strength and beauty of body, mind and soul the really and instinctively attractive thing, the determining thing in marriage choice. The coming of that day will bring a genuine and far-reaching improvement in the inborn character of the race. Will we ever go further than this and place marriage choice in the hands of competent commissions, planning by strict application of scientific principles of genetics to control and guide with accuracy the character of the future race? This I cannot see. I cannot make it seem beautiful and if not beautiful it is not good. It may be I am blinded by present custom and present ideal, and so fail to see a greater beauty that is real. Charlotte Gilman, who is a woman of keen mind and poetic appreciation of the beautiful, would, I imagine,

be ready to accept state-controlled marriage. Elizabeth Browning hardly would have done so. Which is the truer vision? The future will tell. Meanwhile I cannot but feel with Mrs. Browning.

Just one final point:—We have said that the substitution of one race for another, of one people for another, was the unbroken rule in early human history, but that later the era of race fusion began. We have said that this fusion will culminate soon (that is, within a few centuries or millenniums) in complete amalgamation of all surviving races into one race. Up to now civilization has proven fatal or permanently weakening to every race or people who have acquired it, the peoples and nations replacing one another in continual succession. How will it be when the whole world has drawn together and there is but one world race, one world people, one world nation? If civilization proves fatal to that race, that people, that nation, there will be no other people to come up and take its place. With this ultimate race we shall have reached the last ditch and we then must find a solution for the problem of continued improvement of man, or give up the struggle and succumb. There are living today not one per cent of the species of animals and plants that have appeared upon the earth, and doubtless all of this small per cent. now living will perish in their turn. Will the same be true of man? Apparently it will unless we are able successfully to apply eugenic methods to human progress. Highly organized animals and plants do not persist long. We have perhaps a few thousand years, perhaps much less, for the study of this problem and for finding its solution, if we are to stay the ultimate destruction of mankind. The problem is one it seems wise to face squarely and with determination. Its solution will be found, if at all, by intensive and extensive study of the science of genetics, and by most thorough study of the psychology and biology of social control over race improvement. Endowments for the study of the biology and genetics of humankind and their social and individual psychology may possibly be as important as endowments to provide for the study of the improvement of corn and hogs.

ANIMAL DISTRIBUTION AND ANCIENT DISTRIBUTION ROUTES*

The subject of animal distribution naturally divides itself into two main divisions: First, the facts of their distribution today, and, second, the reasons for their distribution in this manner. There are different regions of the earth which differ from one another in the character of their faunas, and the earth, including both land and water, can be mapped faunistically. The facts of animal geography and the broader implications of these facts both prove of keen interest. There are many puzzles for which diverse solutions have been suggested. Let us first see a few of the phenomena in a broad classification, and note the difficulties of explanation which these phenomena present. Then let us see some of the ancient geographical conditions which have been proposed to account for these facts of present day distribution of animals. But the chief purpose of this discussion is to bring out and emphasize an important, but as yet almost wholly unused, method of solving many of the puzzles in animal distribution.

We all know that faunas of tropical countries differ from those of temperate countries, and that they differ still more from those of Boreal and Antartic regions. But the study of geographic distribution of animals can be carried far beyond the mere recognition of these major temperature zones. For example, in America we can recognize a number of regions pretty well demarcated by the character of the animals which inhabit them.

The Boreal fauna, from Greenland to the Alaska Mountains, is pretty well marked off. The Musk-Ox, the Polar Bear, the Arctic Fox, the Walrus, the Lemming, are conspicuous examples of characteristic northern forms, which might be paralleled by numerous examples of Grustacea, Insects, Molluska and other less conspicuous animals. This Boreal fauna extends hardly further south than Great Slave Lake, Hudson's Bay and Labrador. To this statement, how-

*The data in the first part of this paper are compiled from numerous sources, but are largely from Scharff's "The Distribution and Origin of Life in America."

ever, there is one very interesting exception. On the White Mountain plateau of central New Hampshire we find numerous animals and plants of truly Boreal character, not found anywhere in the surrounding region, but appearing a thousand miles to the north in Labrador and Greenland. Among the plants common to the Presidential Range and to Labrador, and wholly, or almost wholly, unknown from the regions between, may be mentioned *Rhododendron lapponicum, Salix phylicifolia, Arenaria groenlandica, Phleum alpinum, Diapensia lapponica, "Campanula rotundifolia", Gentaina nivalis,* and many others. Among the animals showing similar distribution we could cite grasshoppers (*Pezzotettix*), beetles, moths (*Dasychira, Arctia, Anarta*), butterflies (*Aeneis*), land snails, and even one mammal, a Leeming-Vole (*Synaptomys*). This island-like Boreal fauna and flora of the White Mountains highlands is regarded as a relict from the Glacial Period, having originally been forced south by the glaciers from their northern home, and having been left upon the mountain tops when the ice retreated northward again.

Another possibly similar instance of northern forms forced southward during the Glacial Period and left behind at its close is found in some animals of the deep water faunas of Lakes Superior and Michigan. We find here a fish (*Triglopsis*) known nowhere else except from Hudson's Bay, where it is marine; also we find in these lakes and in Lake Erie a shrimp (*Mysis relicta*) and another small Crustacean (*Pontoporeia*), both very close relatives of northern marine forms.

The forest area of the eastern United States is faunistically somewhat distinct from the Great Plains with their ground rodents and their herds of Bison and Antelope. The Pacific Coast region with its coastal mountains is also distinct from the Great Plains; while interpolated between the Pacific Coast region and the Great Plains we have the well demarcated Rocky Mountains fauna and flora. Remarkable as it may seem, the Pacific Coast fauna is in many regards more nearly related to that of Asia than to that of America east of the Rockies. Its Crayfishes belong to a genus found in the eastern hemisphere (*Astacus*) and not to our eastern American genus (*Potamobius*). Among the butterflies the genera and subgenera, and in some instances even the species are oriental. Much the same may be said of the Land-Snails and Slugs, of some of the Ants, and of some of the group *Arachnida,* which includes the Spiders. One family of tailless *Amphibia,* the *Discoglossidae,* widespread in Euro-Asia, has no representative outside this oriental region, except a single

species found in the Olympic Mountains in the state of Washington, between Puget Sound and the Pacific Ocean, and a little further south in the Siskyou Mountains of the northern California coast. (Fig. 1.)

Now that we have spoken of the strange occurrence of identical or closely related genera and species in Euro-Asia and North America, we might mention a few other instances. The Alligator (Fig. 2) is known only from the southeastern United States and from the Yangstee River in China. The American Mountain Sheep (*Ovis canadensis*) is more nearly related to the Kamchatkan Sheep (*Ovis nivicola*) than either is to any of its neighbors (Fig. 3). The Rocky Mountain Goat, really a goat-antelope, has its nearest relatives in the goat-antelopes of eastern Asia. There are also most remarkable floral resemblances between eastern Asia and eastern (not western) North America. A couple of hundred species of plants are identical in these two regions, and several hundred more are very near relatives. In the case of a number of genera but two species are known, one from eastern Asia and the other from eastern North America. As examples of identical species in the two regions, we may cite *Monotropa uniflora* and *Phryma leptostachya.* The close relationship between these plants of eastern North America and eastern Asia parallels the condition in the distribution of the Alligator.

Fig. 1. The distribution of the Discoglossidae. The dotted lines outside the continental edges indicate a depth of one thousand fathoms.

As remarkable as the Asia-North America relationships are some of the North America-South America relations. The floras of our Rocky Mountains and of the southern Andes (Chile) show remarkable occurrence of similar forms (Fig. 4), though these are not

Fig. 2. The distribution of the Alligator

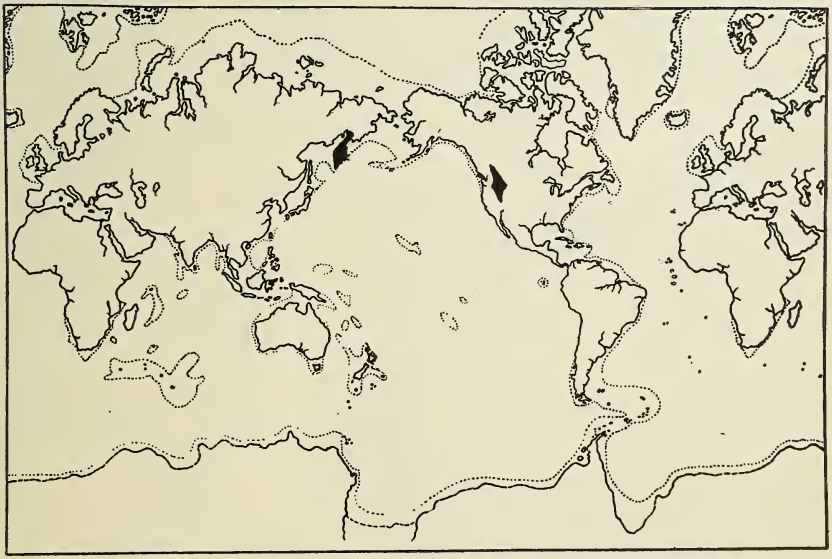

Fig. 3. The occurrence of Ovis canadensis and O. nivicola

represented in the northern Andes or in the mountains of Central America:—e. g., *Ranunculus, Anemone, Geranium, Spiraea, Geum, Rubus, Saxifraga, Vaccinum, Gentiana, Hieracium.* Identity of species is seen in numerous instances: e. g., *Gentiana prostrata, Trisetum subspicatum, Primula farinosa, Draba incana, Alopecurus alpinus, Saxifraga caespitosa, Polemonium micranthum, Collomia gracilis, etc.* And there are similar, though less numerous, resemblances between the plains floras of western North America and southern South America.

We can not continue, of course, in such detail, telling of the distribution puzzles to be solved. The little detail already given in regard to our own country instances phenomena we are all at least in part familiar with. The whole subject is so tremendously big, and its different aspects are so interwoven, that it is difficult to choose what shall be mentioned and what omitted. Our task is rendered a little easier, however, for we are interested tonight not so much in the facts of animal distribution or even in the suggested explanations of these facts as we are in the method of studying these facts and theories. Let us glance at a few of the broader relations in America and then at a few of the broader relations in the eastern hemisphere. Let us then refer to some of the suggested explanations of these condi-

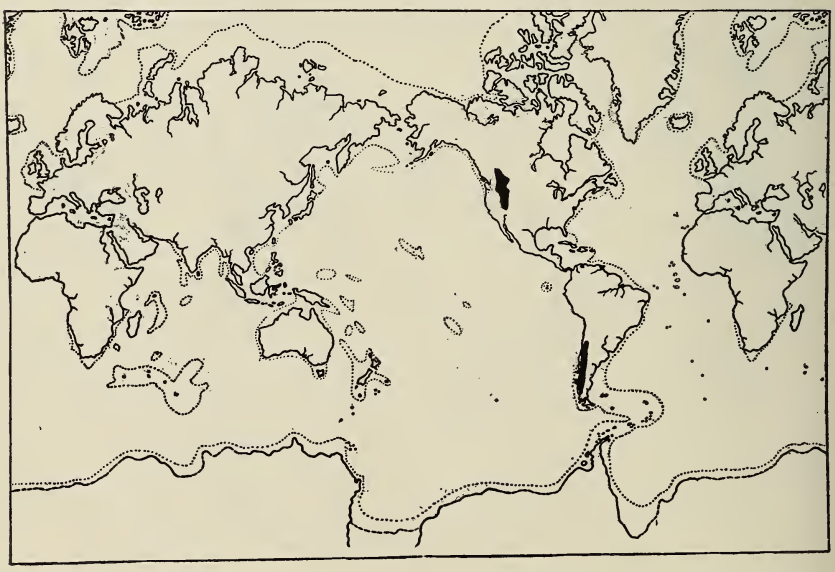

Fig. 4. Areas of close resemblance in mountain floras in North and South America

tions and conclude with mention of the methods of approach to such problems and with illustrations especially of one method of study.

The general faunistic regions in North America we have in part mentioned: (1) The boreal plains and the White Mountain plateau; (2) The eastern wooded area, both plains and mountains; (3) The great grassy plains; (4) The southwestern desert; (5) The Rocky Mountain region; (6) The Pacific Coast area, including the coastal mountains; (7) The subtropical region of the Gulf Coast and northern Florida, which gives us a somewhat distinct fauna; (8) The southern end of Florida from the Everglades south, which shows such resemblance to the West Indies and such differences from Central and Northern Florida that we may rank it as deserving separate mention.

In Central America we have the dry region of northern Mexico, including both plains and mountains. This is closely similar faunistically to western Texas, New Mexico, Arizona and southern California, and they should all be grouped together in the so-called Sonoran region. Most of the peninsula of Lower California belongs faunistically to this Sonoran region.

The mountain ranges in the Sonoran region in both Mexico proper and in central Lower California run in general north and south, but at the tip of Lower California we find ranges of hills trending easterly and westerly and composed of more ancient rocks. This region is separated by broad plains from the region of north and south mountain ranges in the central portion of the peninsula. If the east and west ranges of the tip of the peninsula were to be continued eastward

Fig. 5. South America showing the highlands shaded.

they would connect with the mountains of southern Mexico, which are composed of similar rocks and also trend easterly and westerly. The fauna of this region of more ancient ranges, including the tip of Lower California, shows general Central American character. So also does the fauna of the West Indies. Northwestern South America belongs faunistically to this same area.

South America, from the standpoint of geographical distribution of animals and plants, is possibly the most interesting of all the continents (Fig. 5). On the basis of the character of the local faunas we can subdivide this fascinatingly interesting continent into: (1) A northwestern region related to Central America and the Antilles; (2) The highlands of the Guianas; (3) The highlands of eastern Brazil, which, however, show numerous resemblances to the Guiana highlands in the more ancient members of the two faunas; (4) The great forest lowlands of the Amazon and the Orinoco, which are continuous; (5) The Pampas, southern grassy plains; (6) Patagonia and the southern mountains of Chile and Argentina, hardly distinct from the southern grassy plains region except as influenced by present environmental conditions. The central Andes region is very young and is somewhat better demarcated geologically than it is faunistically.

Some of the broader affinities of the faunas and floras of these several regions are of the keenest interest. For example, the land

Fig. 6. The distribution of the Characinidae. (After Eigenmann.)

and fresh water faunas of the Guianas and the highlands of eastern Brazil show marked similarity in some of their more ancient animals, while there is diversity between the more modern forms. This seems

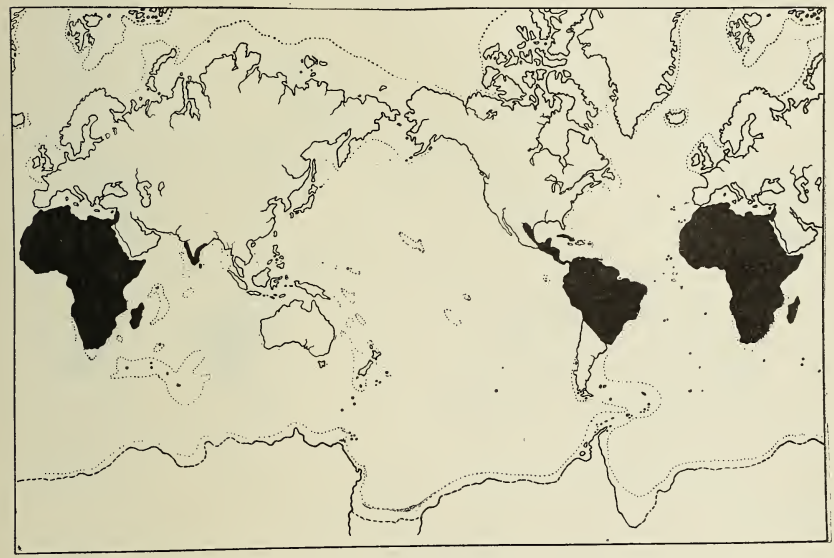

Fig. 7. The distribution of the Cichlidae. (After Eigenmann.)

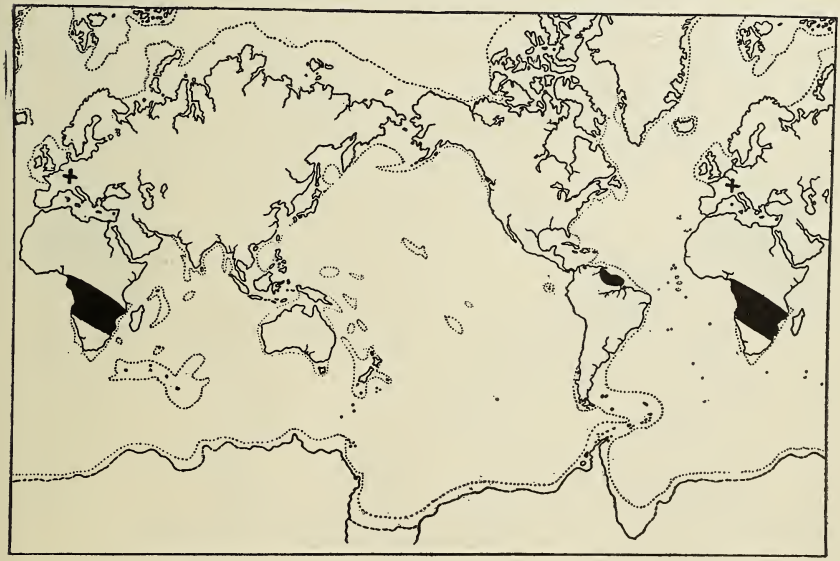

Fig. 8. The distribution of the Pipidae. The occurrence of a fossil, Paleobatrachus, in Europe, is indicated by a cross.

to indicate ancient closer geographical union between these two uplands, with a more recent separation due apparently to the development of the Amazon valley with its low-lying forests. Again, the common elements in the faunas of these high regions in both the

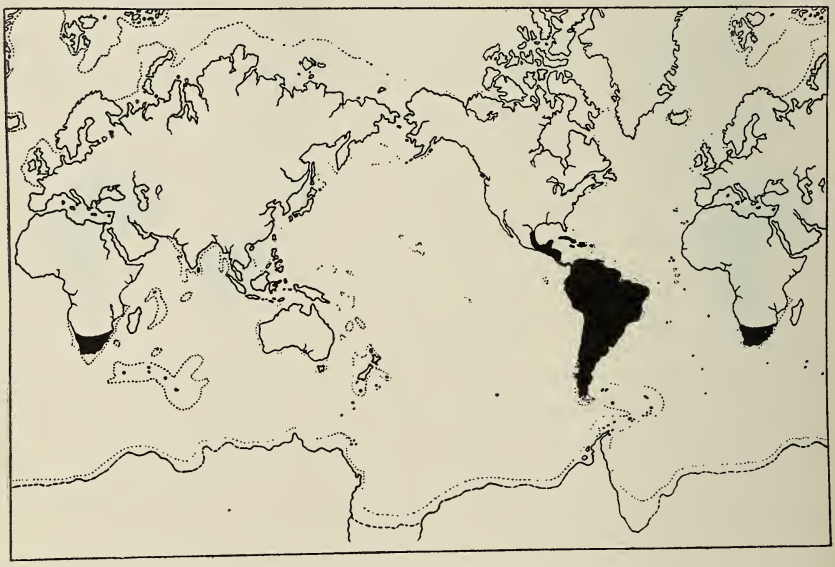

Fig. 9. The distribution of Peripatus

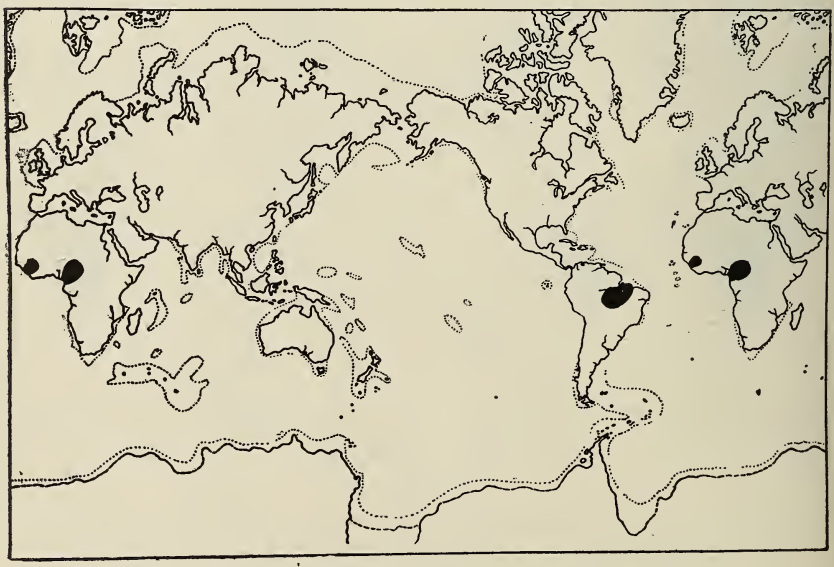

Fig. 10. The distribution of Cryptostemma westermanni

Guianas and eastern Brazil show striking resemblances to the fauna of tropical Africa. Does this indicate that at the time when the highlands of Guiana and eastern Brazil were connected with one another they were also united by land eastward to Africa? This is so remarkable a suggestion that we would better stop a moment to mention examples of this resemblance. Note the distribution of two families of fresh water fishes, the *Characinidae* (Fig. 6) and the *Cichlidae* (Fig. 7). Observe the distribution of the *Pipidae* (Fig. 8), the most primitive and most ancient family of the *Anura* (*i. e.* of the *Amphibia,* which include frogs, toads, tree-frogs, and a number of other types less familiar). In the most primitive group of the whole insect tribe, the genus *Peripatus* (*sensu stricto*), the species are all confined to tropical America, except for one species in southern Africa (Fig. 9). *Cryptostemma westermanni,* an archaic spider-like form, occurs in tropical America and in two areas of western Africa (Fig. 10). This species seems to be the sole survivor of the otherwise extinct order *Meridogastra,* somewhat intermediate between the spiders and the Harvest-Men. Like the genus *Peripatus,* it is a very ancient form. Many other similar examples could be cited of resemblance between tropical Africa and tropical America in ancient members of their faunas from the groups of *Mollusca, Insecta, Arachnida,* worms, tailed *Amphibia* (*Urodela*), tailless *Amphibia* (*Anura*), rep-

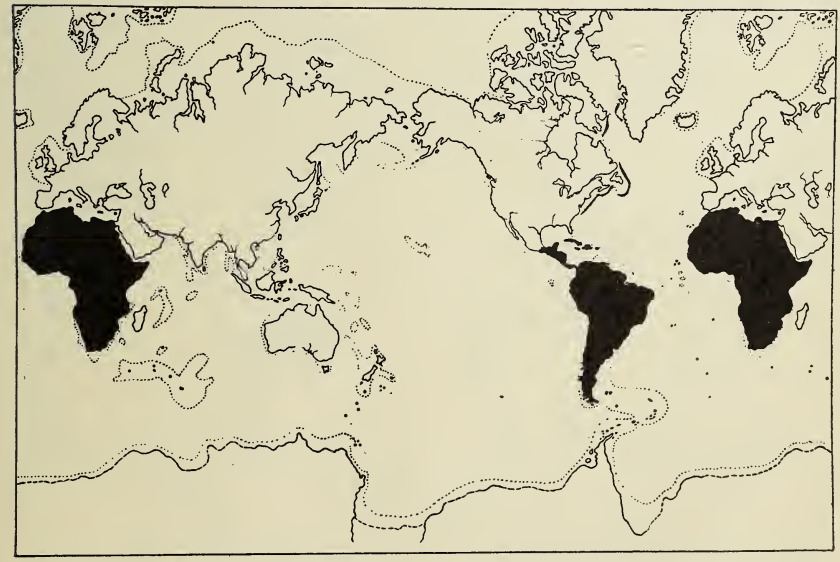

Fig. 11. American and African distribution of the Hystricomorpha. They extend also a little into Southern Europe and Asia.

tiles and even mammals, one whole group of rodents (the *Hystricomorpha,* Fig. 11) being confined to Africa and tropical America. Can we accept the idea that Africa and South America were once united by land? We will return to this point later.

The Andes of Ecuador and Peru show remarkable faunal dissimilarities to the southern Andes and show interesting resemblances to Central America and to the eastern hemisphere. What can we think of this?

The Patagonian region, with which we must place the Andes of southern Chile and Argentina, is remarkably distinct faunistically from tropical South America, and it shows still more remarkable resemblances to New Zealand, Tasmania, Australia and New Guinea, all of which southern Pacific lands may be included in the name Australasia. Shall we postulate, then, on the one hand, an area of ocean once intervening between Patagonia and tropical America and, on the other hand, a land connection between Patagonia and Australia? Both of these things, I think, we can confidently affirm. In illustration of the faunal diversity between Patagonia and tropical America, and also of the faunal resemblance between Patagonia and Australasia, note merely the fishes, the *Anura* and the Marsupial mammals. Eigenmann found the fresh-water fishes of southern Chile

Fig. 12. Regions in Chile and New Zealand occupied by closely related fresh-water fish

unrelated to those of the northern Andes and Brazil, but closely related to those of New Zealand (Fig. 12). True frogs, that is, frogs belonging to the northern family *Ranidae,* are unknown in southern South America. Their place is taken by a superficially similar group, the *Leptodactylidae,* which we may call the Southern Frogs. These are very numerous throughout South America, but have not passed north beyond the bounds of tropical America. They are, however, abundant in Australasia, though not so abundant as in South America (Fig. 13). How do they come to be in these two widely separated regions?

You are all familiar with the Tree-Frogs, the little spring peepers, so small as rarely to be seen, but vociferously claiming our attention from every pool in the early spring. These Tree-Frogs belong to the family *Hylidae,* a family which in the northern hemisphere is confined to America, except for one stray which has penetrated by way of Alaska to Euro-Asia (Fig. 14). The Tree-Frogs are most abundant in the great forests of tropical America, but have spread into North America. They endure drouth rather well and have been able in their northward wanderings to get by the Sonoran Desert, the dry region of northern Mexico and southwestern United States. They could go where the more moist-skinned Southern Frogs could not penetrate. But the interesting thing to us now is the fact that these

Fig. 13. The distribution of the Leptodactylidae ("Southern Frogs")

Tree-Frogs, so very abundant in South America, are also represented in Australia and New Guinea. How did they come to have such strange distribution?

Among the *Mammalia* we have examples of very similar, tho reversed, relations between Australasia and Southern America. The formerly more extensive, though now restricted, group of Marsupials, including the Kangaroos and the Opossums, are the characteristic mammals of Australasia. They are represented by a number of species also in tropical America, and one species, the common Opossum, has penetrated northward into the United States. They are found nowhere else in the world. How did members of this group, if they arose in Australasia, ever reach tropical America without crossing Asia and leaving representatives there; and, conversely, if they arose in the western hemisphere, how did they reach Australasia without colonizing Asia also?

We should mention that Australasia is quite sharply demarcated faunistically from southern Asia and Malaysia, many Australasian forms besides the Marsupial mammals being unrepresented by near relatives in Asia-Malaysia, and, conversely, many Malaysian forms having no near relatives in Australasia. Australasia and Malaysia must have become separated long ago.

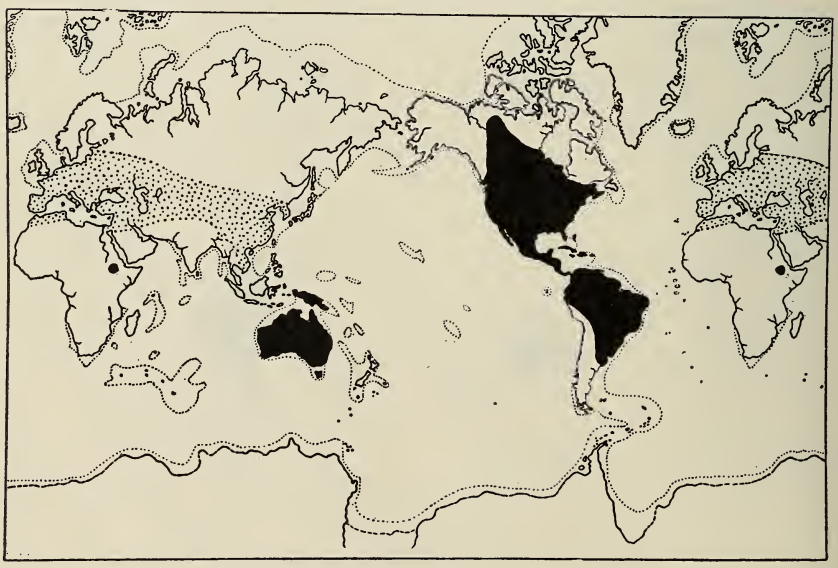

Fig. 14. The distribution of the Hylidae (Tree Frogs)

Similarly Ceylon and the southern tip of India, on the one hand, differ markedly from central and northern India, on the other hand, and show striking resemblances to Madagascar and the Seychelles Islands.

But perhaps we are spending too much time in merely presenting a few of the puzzles. Let us now see what has been suggested in explanation of some of these strange occurrences of similar animals in widely separated areas, though they are absent from intermediate territory.

Some students, chiefly geologists, of whom Dr. W. D. Matthew of the American Museum of Natural History is a leading example, contend that in general such peculiarities in dispersal are due to chance carriage by winds, or by birds, or by ocean currents, or recently by man and his commerce. We know that some individual cases of peculiar distribution have this explanation. The European rabbit was introduced into Australia by man. The big Guiana toad, *Bufo marinus,* has been introduced by man into the West Indies, as has also the Mongoose. The modern American wild horse was introduced by the early Spaniards. There is reason to believe also that natural agencies have in some instances performed a similar function. But the observed distribution phenomena as a whole do not correspond to the necessities of this hypothesis of chance carriage. The faunal resemblances and differences between given areas correspond too generally chronologically to geologic history for any such hypothesis of chance dispersal to account adequately for the facts. In South America and Africa, for example, it is the ancient faunas which show resemblance, not at all the modern forms.

Other students have claimed that parallel or convergent evolution should be invoked to account for resemblances between similar forms which occur in isolated regions at a distance from one another. Hans Gadow, herpetologist in the British Museum, takes this position. We will show soon a method of testing the truth of this hypothesis of convergent or parallel evolution.

The prevalent method of accounting for resemblances between faunas of areas that are now separated from one another, at least the method prevalent among students of geographical distribution, is to assume former connection between the areas which now show the faunal resemblance. The positions of such connecting bridges are studied chiefly from present and past geographical and geological conditions; and these postulated bridges are dated by studies of several sorts—present and past geographic and geologic conditions, the

archaic or modern character of the animals and plants showing resemblance between the areas, the degree of divergence that has occurred in the related stocks of these areas, the occurrence of fossil remains of animals and plants related to those in question, the probable time of origin of those species which are markedly different in the regions studied, and the age of the fossil remains of their ancestors; all these data, and more, furnish indications. In the study of these complicated problems there must be co-operation between geologists, paleontologists, botanists and zoölogists.

Heretofore it has rested with the botanists and zoologists to present the geographical distribution data with the implied suggestions as to former connections between regions now distinct, while testing these suggestions has rested upon the geologists and paleontologists. The main purpose of this paper is to show as our final point that the zoölogists and botanists themselves have an effective method of testing the truth of former land connections now destroyed.

But before taking this up let us look at a few paleogeographical maps showing former connections between continents, which have been postulated chiefly from evidence from the phenomena of the present distribution of animals and plants, aided by data from paleontology, stratigraphic geology and oceanography. These maps are not taken from any single author, though I have in general followed Arldt, modifying, however, from data and suggestions from Schuchert, Scharff, Haug, Vaughan, von Ihering, Eigemann and others. No one but myself must be held responsible for some of the maps in the form shown, though in a general way they agree with general opinion among students of geographical distribution and paleogeography.

Let the reader consult at this point the maps shown in Figures 15 to 22 inclusive.

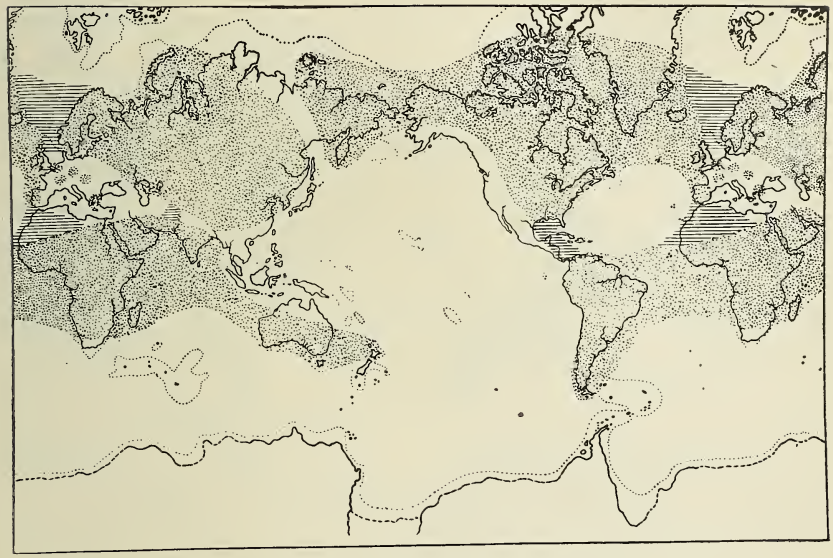

Fig. 15. Triassic continents (from Arldt). The stippled areas are late Triassic. The line-shading indicates additional earlier Triassic land.

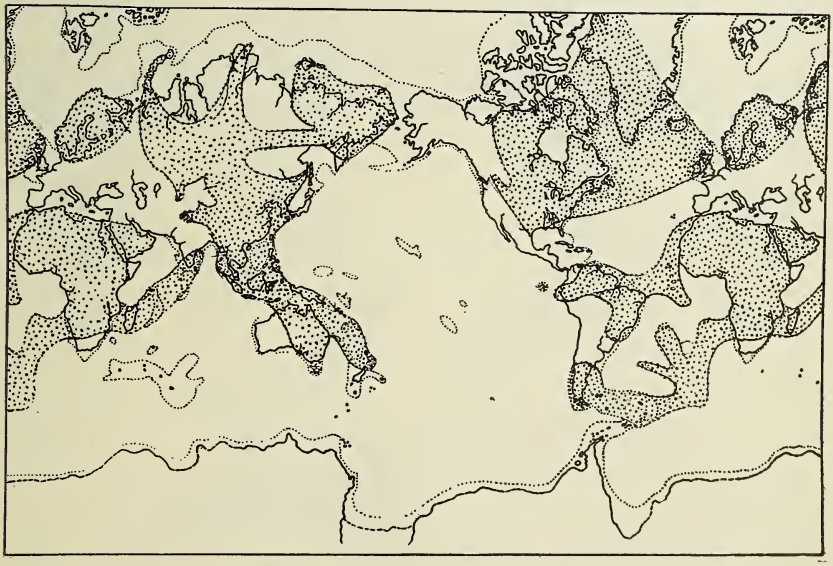

Fig. 16. Jurassic continents

Fig. 17. Early Cretaceous Continents.

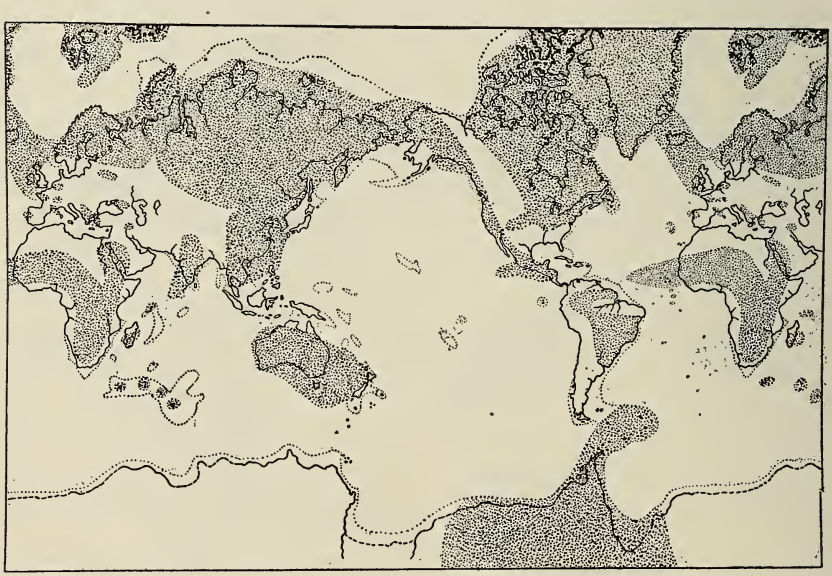

Fig. 18. Middle Cretaceous continents. (After Schuchert.)

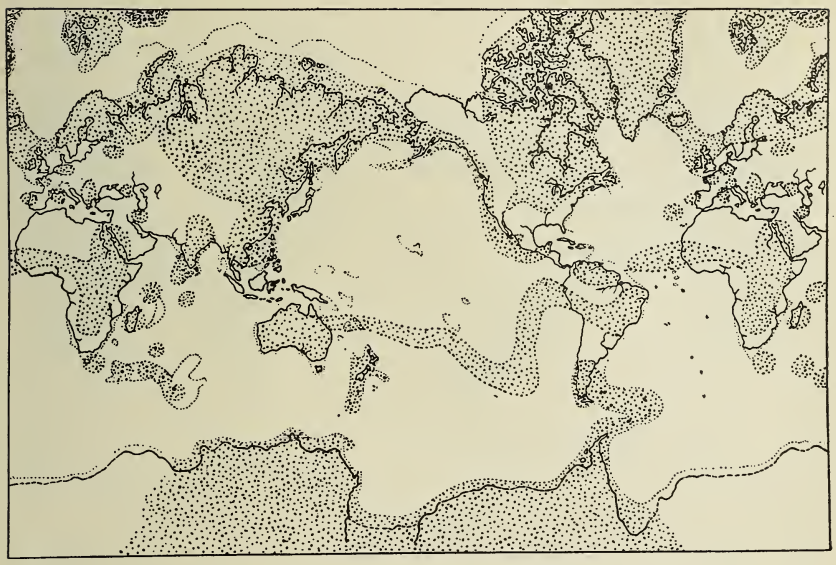

Fig. 19. Late Cretaceous continents

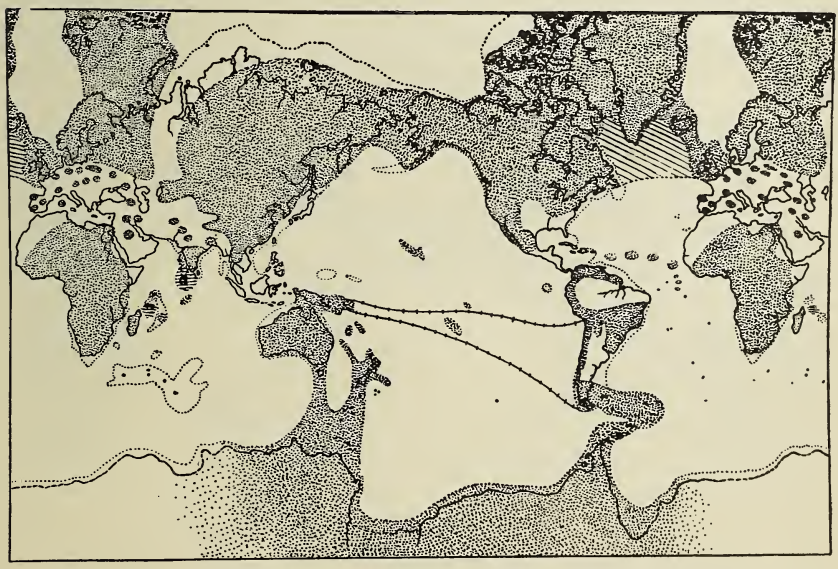

Fig. 20. Early Tertiary continents. (From Arldt, modified.) The stippled areas are Oligocene and early Miocene. The line shading indicates additional earlier land areas. Antarctica and its connections with Australia, New Zealand and Patagonia have been added to Arldt's chart. Our chart omits a trans-Atlantic connection between tropical Africa and Southern America which Arldt showed for Oligocene times.

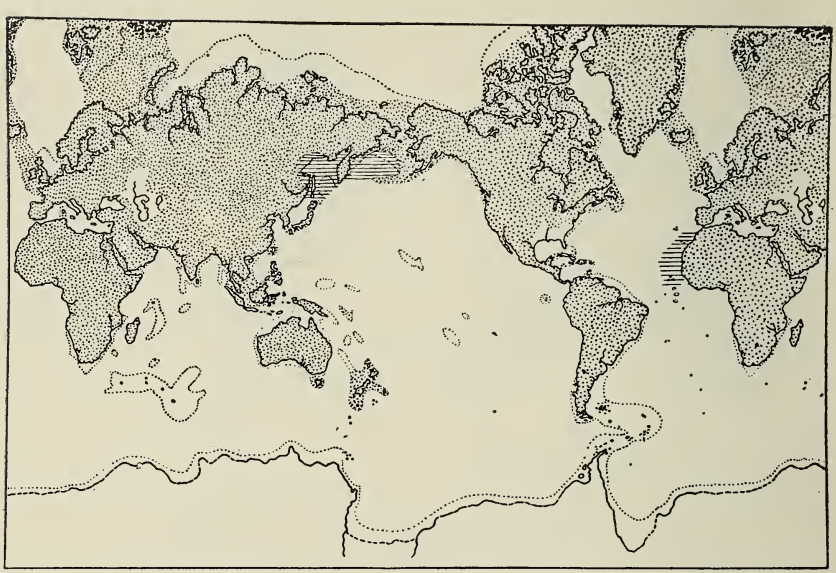

Fig. 21. Late Tertiary continents. (From Arldt, modified.) The stippled areas are Pliocene lands. The line-shading indicates additional Miocene lands. Arldt connects the West Indies with Guiana in the Miocene. This chart shows them connected with Central America in the Pliocene (Vaughan, 1919). There is general agreement that portions of Central America, south of Mexico, were submerged during most, at least, of the Miocene.

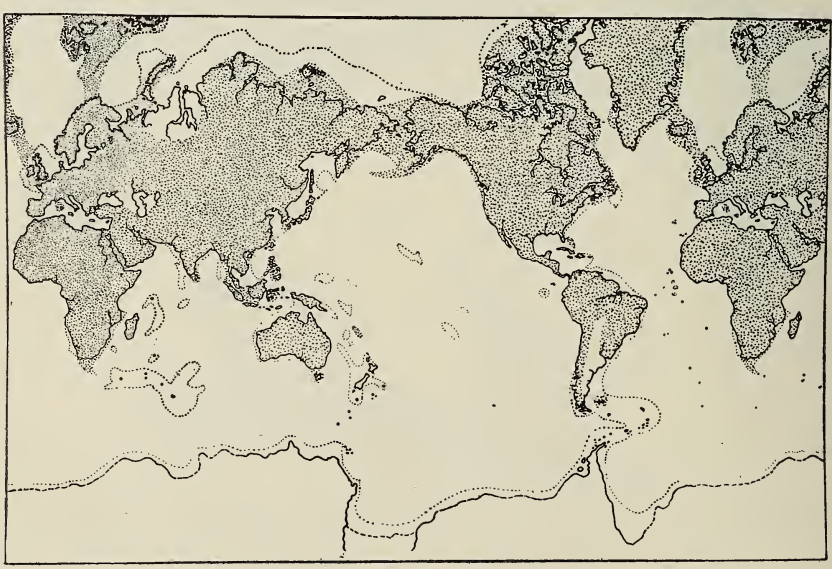

Fig. 22. Pleistocene continents. (After Arldt.)

We see from these maps, according to prevalent views, that east and west migration occurred freely by the equatorial route during the early Mesozoic period (Fig. 15), as it had during the later Paleozoic period; that by the end of the Mesozoic period this equatorial route was completely interrupted by the Indian and Atlantic oceans (Fig. 19); but by this time an Antarctic route between Australasia and Patagonia had been established (Fig. 20); this southern route, however, was lost by the middle of the Tertiary period (Fig. 21).

Spreading to the north or south during all these times was very restricted. During the Jurassic period there was a route from Australasia to Asia-Malaysia (Fig. 16), but this became permanently interrupted in the Cretaceous (Fig. 17). Africa did not establish its northern connections with Euro-Asia until the late Tertiary (Fig. 21), and Central America did not appear as a bridge between North America and South America until the late Tertiary (Figs. 21 and 22). There was, however, a parallel route a little to the westward of the present central American lands during the Cretaceous and perhaps a portion of the earlier Tertiary (Figs. 17 and 18). This land strip united northwestern South America, the Galapagos Islands, the mountain region of Guatemala and southern Mexico, the tip of Lower California, the Southern California Islands (Santa Catalina, etc.), the Santa Inez Mountains around Santa Barbara, the Presidio Hill and Mount Tamalpais at San Francisco, the coast ranges to the north of this, the peninsula between Puget Sound and the Pacific Ocean with its Olympic Mountains, Vancouver Island, the western line of islands of Alaska, the Aleutian Islands, Kamchatka, and on to Asia and Maylasia, the detailed connections at the Asiatic end of this great land strip being very uncertain, not having received as yet much study. Eastern North America was at this time wholly separated from Alaska and the eastern Pacific land strip by an ocean channel extending from the Gulf of Mexico to the Arctic Ocean, excepting that for a time there was probably a connection from the Pacific land strip to the southwestern part of the eastern North American land mass. This was probably a temporary connection. It is not shown as complete in the maps, but would lie in the region of the upper end of the Gulf of California (Figs. 18 and 19).

Conditions in the northern hemisphere need not detain us long, for we limit our discussions chiefly to the southern hemisphere problems. Note, however, in the earlier periods (Mesozoic) great interruptions in the northern lands, but the establishment by the late Tertiary of broad connections east and west around the world by

subarctic routes (Fig. 21). Note the Alaska-Siberia union of America and Asia. Note, also, the bridge from France, by way of the British Isles, the Shetland and Faroe Islands and Iceland to Greenland (and Labrador?). There was possibly another route from northern Greenland to Scandinavia by Nova Zembla, but this would be an ice-blocked route at least most of the time.

There is great disagreement as to details, but the conditions we have so bluntly stated are a sort of average and compromise statement to which there would be rather general agreement on the part of paleogeographers, including those who come to the subject as stratigraphic geologists, or as paleontologists, or as students of geographic distribution of living animals and plants. The matter of chief hesitation is as to former Pacific Ocean lands and the western connections of the east and north Pacific land strips.

Now let us pass without further delay to examples of the distribution of animals in relation to these postulated paleogeographic conditions. First, as to connection between Patagonia and Australia. The data already mentioned, from Eigenmann's fresh-water fishes (Fig. 12), the Southern Frogs *Leptodactylidae* (Fig. 13), the Tree Frogs *Hylidae* (Fig. 14) and the Marsupial mammals, will serve as illustrations of the distributional evidence indicating former union between these two areas. But, as already noted, such evidence has been questioned by Gadow and the school of thought he may be taken to represent. If we were dealing with but a single group, the Southern Frogs, for example, it might be conceivable that the Australian and South American representatives arose independently, possibly from ancient members of the toad family, and that the Australian Southern Frogs resemble those of South America, not because of close genetic relationship, but rather as a result of parallel evolution. This is conceivable, though difficult to believe, but we have one item of evidence that destroys such plausibility as there might otherwise be in this hypothesis of parallel evolution. The Australian and South American Southern Frogs have the same parasites. It might be possible to conceive that the resemblance between the frog hosts in the two regions is due, not to true relationship and common origin, but to parallel evolution, as Gadow has suggested, but it is not possible for a moment to believe that similar resemblance between the parasites of these hosts in the two areas is also due to parallel evolution. Such chance similarity between the hosts themselves, without real relationship, seems very hard to accept, but chance resemblance between both hosts and parasites in the two areas is a

hypothesis not to be seriously entertained. And such hypothesis becomes the more impossible when we realize that not one group but three groups of parasites of the Australian and South American Southern Frogs are known to show close similarity between the two regions. This is clinching evidence as to the fact of former land connection between Australasia and South America. And it is evidence of a sort that can be multiplied to an almost indefinite extent, and be applied as a test to all questions of former intercontinental bridges. The former exisence of such bridges, if true, can be proven definitely by sufficiently general use of this method.

Note how this method may be applied further to the question of a Patagonia-Australia bridge. The Southern Frogs have at least seven groups of parasites, and the Tree Frogs have at least eight. We have studied the Australian and South American species of only three of these groups of parasites of these frogs, but from each of the three groups the evidence is the same. There seems no escape from the conclusion to which these data point. The other groups of parasites should, however, be studied.

There are many keenly interesting questions as to the position and the geologic time of the Australia-South America bridge or bridges, which we haven't time to discuss. Three different routes have been suggested:—By way of Antarctica (Fig. 20), via a mid-Pacific continent or land strip (Fig. 19), by a northern, circum-Pacific land strip (Fig. 17). Recent explorations of Antarctica have shown that during the early Tertiary period Antarctica had a subtropical, moist climate flora, including ferns, tree-ferns and cycads. The indications are that the Southern Frogs crossed at this time by way of Antarctica from Patagonia to New Zealand, Tasmania, Australia and Papua. The absence of Tree Frogs from Patagonia and Argentina suggests that in their crossing to Australasia from tropical America they took a more northern route (Fig. 19).

But there is much more in the host-parasite method than we have as yet noted. Let us go into the matter a bit further. For some dozen years or more I have been interested in a group of one-celled animals, Protozoa, of the family Opalinidae, which are parasites of the frogs, toads and their relatives (Fig. 23). Thru the courtesy of the United States National Museum I had opportunity to take these

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OPALINIDAE

Protoopalina

Cosmopolitan.

Zelleriella
Tropical Central and South America and Australia.

Cepedea
Cosmopolitan, except Australasia.

Opalina
Cosmopolitan, except Australasia, South America and Madagascar.

Opalinae latae (Broad Opalinas)
Eastern hemisphere (except Australasia and Madagascar) and Pacific coast of North America and Central America.

Opalinae angustae (Narrow Opalinas)
North America and Central America. One species migrated to Euro-Asia.

Fig. 23. Classification and distribution of the Opalinidae.

parasites from all the preserved tailless Amphibia on the Museum shelves. It has proven a rich mine, 1200 operations yielding 120 new species and subspecies. These, with the 24 species previously known, make about 150 species of Opalinids. My material is from all parts of the world, the only region not well represented being Asia, south of the Himalaya Mountains. Collections from the rest of the world are sufficiently abundant to be fairly representative. Among the Opalinidae can be recognized 17 genera and subgenerea, whose interrelationships are for the most part clear (Fig. 24). We know much of the geographical distribution of each of these seventeen groups of

OPALINIDAE

Protoopalina
8 subgenera

Zelleriella
Cepedea
6 subgenera

Opalina
2 subgenera

Fig. 24. Diverse groups among the Apalinids.

parasites. These parasites in my material are from 11 families and subfamilies of Amphibia, including 37 genera and 175 species, and the geographical distribution of all these hosts is known. You can imagine that data from so many forms, in which we can compare the distribution of both hosts and parasites in the several regions of the earth, give evidence on many points of far-reaching interest. We will glance at just a few of these matters, in order to emphasize the value of the host-parasite method.

The toad family (*Bufonidae*) are found the world round, except in Madagascar, where they must have become secondarily extinct from some cause we do not know. We can divide the *Bufonidae* into two groups, placing by itself the great genus *Bufo,* and grouping together all the other genera, all of which are apparently more primitive than *Bufo.* The archaic genera are found in Australia, western Maylasia (including the Malay Peninsula), in India and Ceylon, in tropical Africa, and in the northern part of tropical America (Fig. 25), that is, in lands, except Madagascar, that were once included in the great tropical continent Equatoria (Fig. 15). *Bufo* itself is found in all these lands, except Australia and Tasmania, and in addition is found in all other parts of the earth where climatic conditions permit its

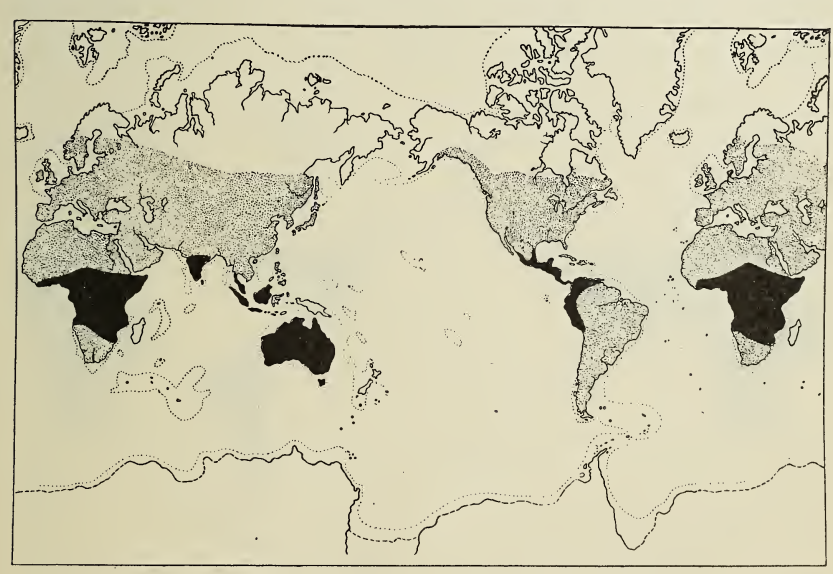

Fig. 25. The distribution of the Bufonidae. In black is shown the occurrence of genera other than Bufo. The additional territory occupied by the genus Bufo is shown by stippling. Bufo is found in all the areas shown in black, except Australia and Tasmania. (See Fig. 23.)

presence (Fig. 26). Why isn't the genus *Bufo* in Australia? It is in Asia-Malaysia. Apparently Bufo arose later than the early Cretaceous, the period when Australia separated from Asia-Malaysia (Figs. 17 and 16). But during the following early Tertiary times Australia was connected to Patagonia by way of Antarctica (Fig. 20). *Bufo* is now in Patagonia. Why did it not pass by way of Antarctica to Australasia? The Antarctic climate was then a mild one. Apparently it must be that *Bufo* wasn't in Patagonia at that time or it would have crossed to Australia. Why wasn't it in Patagonia in the early Tertiary? It doubtless was already in northern South America. Why wasn't it able to reach Patagonia? This reminds us of the relations among the fresh-water fishes. Eigenmann has shown that the Brazilian and northern Andes fishes do not extend south to central and southern Chile, and that the southern Andes fishes are not known from elsewhere in South America but are nearly related to New Zealand fishes (Fig. 12). There was a shallow sea across what is now northern Argentina and northern Chile, separating southern South America from tropical America (Figs. 19 and 20). This did not disappear until the Pliocene (*i. e.,* late in the Tertiary, Fig. 21), at the time when the central Andes were formed. From the Pliocene onward toads of the genus *Bufo* have been able to get from tropical America south to Patagonia, and some

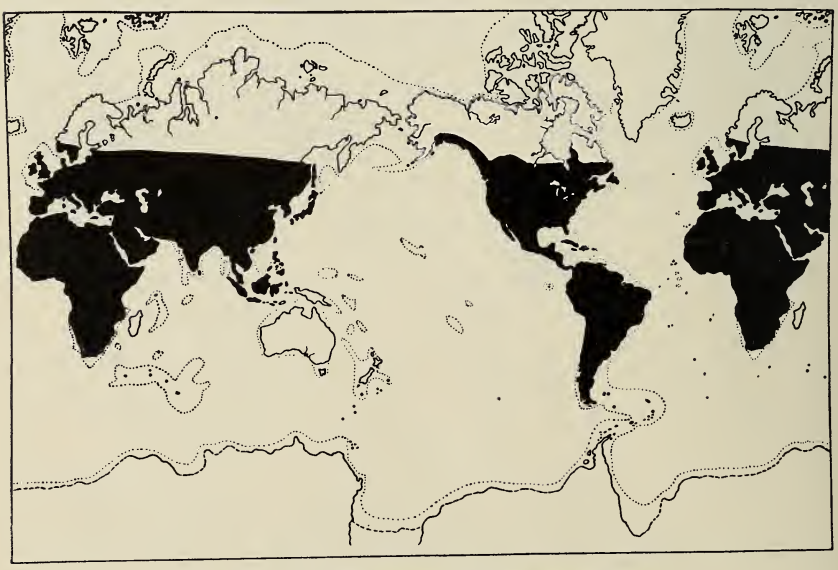

Fig. 26. The distribution of the genus Bufo.

have done so. But if in Patagonia since the Pliocene, why haven't they gone on to Australia by the Antarctic route? Because, during the later Miocene period, just preceding the Pliocene, the strip of land connecting Patagonia with Antarctica sank beneath the sea (Fig. 21). That is, the route from Patagonia to the south was closed before the route from northern South America to Patagonia was opened.

The *Leptodactylidae* arose apparently in Patagonia or in lands adjacent to and connected with Patagonia, including probably portions of Argentina and Chile. This American origin, rather than an Australian origin, is indicated by the fact that the genera and species of *Leptodactylidae* are much more numerous in America than in Australasia. They first appeared probably early in the Tertiary, or possibly in the late Cretaceous. Their original Opalinid parasites were Protoopalinas of the most primitive subgeneric group, and both South American and Australian Leptodactylids still bear these ancient parasites. But during the early Tertiary period there evolved from *Protoopalina* another genus of Opalinids, namely *Zelleriella*. *Protoopalina* is cylindrical; *Zelleriella* is very flat. *Zelleriella* is confined to tropical and south-temperate America, except that it appears also in Australia, and there is almost identity between the Australian and American species. Indeed all the species in this parasite genus, *Zelleriella*, are very similar. The genus is the youngest in its family and has retained its original character. A number of species may be recognized, but only with the closest observation of minute points of structure. The genus is perhaps too young to have developed very diverse species.

In tropical America both the Southern Frogs and the Tree Frogs carry *Zelleriella*. How is it, then, that in Australia we find the Southern Frogs harboring *Zelleriella*, but have found no Australian Tree Frogs with *Zelleriella?* If the Southern Frogs of Patagonia carried *Zelleriella* to Australia, why did not the Patagonian Tree Frogs do the same thing? The answer is easy. The Tree Frogs are highly resistant to infection by *Zelleriella*. Although the Tree Frogs and Southern Frogs have lived together in South America for several geologic periods, only two species of Tree Frogs have so far been found to carry *Zelleriella*. You see how the evidence from the hosts combines with that from the parasites to indicate conclusions not to be drawn from either group alone.

The Tree Frogs are resistant to infection by *Zelleriella*, but the toads, on the other hand, readily adopted *Zelleriella* as soon as they met the Southern Frogs, when these moved northward into tropical

America after Patagonia and tropical America united. The toads will receive any Opalinid parasites with which they come into contact. They are hospitable hosts. But the Northern Frogs are not. The Northern Frogs met the Southern Frogs in Central America as early as the middle of the Pliocene period, but only one Northern Frog is known to have accepted from the Southern Frogs their *Zelleriella* parasites. There is a great amount of varied and intricately interwoven evidence in these matters of distribution and paleogeography, and solving the puzzles presented requires ingenuity, but the evidence for their solution is there and the solution can be found.

Our time is about gone and we must pass by dozens of fascinating problems which can be studied by the host-parasite method, using the distribution of the *Anura* and their Opalinids as data. I shall mention but three more.

The Tree Frogs arose in tropical South America, and in this their home country they bear the cylindrical Opalinid genera *Protoopalina* and *Cepedea*. The flattened genus *Opalina* is unknown from South America. But when, in their northward wandering, the Tree Frogs penetrated into North America, they met there the frogs and toads abundantly infected with *Opalina*. The Tree Frogs promptly adopted these Opalinas, but it is of interest to note that the Opalinas adopted by the new Tree Frog hosts became much narrower in body form. We can now divide the genus *Opalina* into an older group of broad-bodied species found in the frogs and toads of the eastern hemisphere and the California coast (Fig. 23), and a group of narrow species found in the Tree Frogs of North America. The narrow Opalinas are found only in North America, except that in Europe and in Asia we find a single species of a narrow form which is parasitic in three very closely related species of Tree Frogs, all doubtless descended from a common ancestor. What does all this tell us? The Tree Frogs originated in tropical South America. About the middle of the Pliocene period they reached Central America, wandering north over the Isthmus of Panama and on into North America. In Central America and North America they met the broad Opalinas of the frogs and toads and adopting them changed them into narrow species. One of the North American Tree Frogs moved further north and on over the land which then united Siberia and Alaska across Behring Straits. This emigrant Tree Frog passed thru Asia and on to western Europe, leaving behind him colonies in Asia which developed into a couple of new species. But wherever he went he carried in his pocket the narrow *Opalina*

which tells beyond doubt that he came from America. He should have emptied his pockets if he had wished to keep his place of origin secret.

Note the extent of this spread of the Tree Frogs: from Brazil northward thruout the whole western hemisphere and on across the whole width of Euro-Asia and into northern Africa; and also from Brazil to Australia and New Guinea by a southern, trans-Pacific route. The migration from Brazil thruout America and on thru Asia to Europe and northern Africa occurred after the middle of the Pliocene period and before its close, for at the close of the Pliocene period the glacial ice had effectually closed the Alaska-Siberia route. The latter half of one short geological period, for the Pliocene was a short period, was enough to allow this great spreading of the Tree Frogs. This tells us how rapid may be the spreading under favorable conditions if the migrating species be a vigorous one.

On the other hand some species may remain restricted to a single locality thru several geologic periods. In the Olympic Mountains of western Washington State, lying on a narrow strip of land between Puget Sound and the Pacific Ocean, and also a little further south in the coastal Siskyou Mountains, there is found *Ascaphus truei,* the only member of its family known from the western hemisphere (Fig. 1). The one specimen of *Ascaphus* which I examined was at that time the only individual of this genus which had ever been found. Since then many other specimens have been found in the same locality, but as yet I have not been able to study these to see what parasites they carry. I venture to prophesy that when studied they will be found to carry a primitive species of the most primitive genus of Opalinids, for that is the parasite of their European and Asian relatives. *Ascaphus,* or rather its immediate ancestor, came to America from Asia, apparently in the early Tertiary, or possibly in the Cretaceous, by way of the eastern Pacific land strip (Figs. 17 to 19), and has never spread to the eastward beyond the bounds of its first American habitat. Why didn't it move further east? I think for two reasons: (1) For a long time there was no land immediately to the east of the Olympic Mountains, a stretch of ocean extending from the Gulf of Mexico to the Polar Sea; (2) The *Discoglossidae,* to whom *Ascaphus* belongs, are an ancient family and are now decadent. Apparently they became decadent about the time *Ascaphus* reached western America and had not the vigor to spread further when, after a couple of geologic periods, land connections to the eastward would have permitted further wandering (Fig. 20).

We have seen how the parasites of an animal may tell where it came from. Let us note a single example of the fact that the absence of certain parasites may tell that the host did not come from certain regions. The toads of South America did not enter South America from North America, tho toads have been abundant in North America at least since the Pliocene and probably longer. How do we know that they haven't passed across the Isthmus to South America? Because the toads of South America none of them bear the parasites of the genus *Opalina,* which we find in the North American toads. The questions of the place and time of origin of the toads, and their routes of migration to reach the lands they now inhabit, comprising all the world except Australasia and Madagascar, are of great interest as an example of the way data of host distribution and parasite distribution can be used. But the intricacies of these problems are too involved for us to attempt to follow them thru in such a discussion as this. A mere statement of the conclusions reached will show, however, how searching is this host-parasite method. The indications are that the toads evolved probably in north-western South America during the Cretaceous period; that they migrated by way of the eastern Pacific land strip to Asia; that from Asia they spread to Europe before the close of the Cretaceous; that they entered Africa from the northeast during the later Tertiary; that they entered North America from Siberia during the middle Tertiary, penetrating as far as Central America, but never crossing the Isthmus of Panama; that they entered the West Indies during the latter half of the Pliocene. This list of the indications from a study of a single genus of hosts and a single family of their parasites makes one impatient to gather data of many other groups with their parasites and to reconstruct the ancient continents from their evidence.

When the far-reaching significance of the host-parasite method of study first came to me, I thought I was the discoverer of a remarkably effective method of attack upon many problems, and I published one paper before learning that in fact others had struck the same idea. Professor Johnston of the University of Sidney studied extensively the liver-flukes of Australian *Anura* and the tape-worms of Australian birds, and he compared these Australian species of parasites with the similar parasites from the Anura and birds of Euro-Asia and South America. The birds are such wide wanderers that his results from the study of their parasites were not so significant, but in the close resemblance between the liver-

flukes of the *Anura* in Australia and those in South America he brought out evidence exactly parallel to that I found in the *Opalinidae*. This was in 1913. My paper did not appear until 1921, seven years later. But Johnston was not the pioneer in this field. Nearly thirty years ago, von Ihering in a single sentence showed that he had gotten an inkling of the significance of host-parasite distribution data. In discussing the distribution of the fresh-water mussels of South America he showed that the species in Brazilian rivers are sharply distinct from those in Patagonia and southern Argentina, and he noted that the Argentine and Patagonian species were the same as those in Chile on the other slope of the Andes Mountains. Both the Atlantic and the Pacific streams of southernmost America had the same species of fresh-water mussels, while those of more northern streams were all of different species and mostly of other genera. Of the northern species of mussels he said, "And they all have the same species of parasites." This, so far as I can learn, was the first reference in any way to the significance of host-parasite data in problems of ancient geography, for von Ihering was arguing that Brazil was formerly cut off from Argentina and Patagonia by an arm of the sea.

Darling has recently used a study of the hookworms of man to throw light upon early migrations of man, especially in lands in or adjacent to the Pacific Ocean; and Professor H. U. Williams, of your own city, has suggested most interesting queries as to the distribution of parasitic, *i. e.*, contagious, diseases of man in the eastern and western hemispheres.

When we have full data as to the distribution of all animals and of all their parasites properly tabulated, we shall have in these tables a mine of material from which to gather evidence as to former connections between different areas of the earth's surface; and we shall be able to answer from these data not only questions as to former land connections, but questions as well as to former climatic conditions (wet or dry, warm or cold, high land or low land) and questions as to relationships between animals. Vernon Kellogg, for example, has shown by a study of their lice that certain species of European birds are related to certain species of birds in America, and that the resemblance between these birds of the eastern and western hemisphere is not due to convergent evolution.

My studies of the *Opalinidae* of the *Anura* have given evidence of a considerable number of things, some of which it may be worth while merely to list, in order to emphasize the fertility of this host-

parasite method of study. We have evidence from these studies: (1) That Australia and Patagonia were connected during the early Tertiary period; (2) That they were not connected after the close of the Miocene or the early Pliocene; (3) That Patagonia and Brazil were distinct during the early Tertiary, but were united during the Pliocene and remained so; (4) That Australia, South America and Africa were united during the early Mesozoic; (5) That the West Indies were connected with Central America at some time since the early Pliocene; (6) That Alaska and Siberia were united during the Pliocene; (7) That the *Anura* of New England did not come to their present habitat from Europe by way of the Iceland-Greenland bridge; (8) That this Iceland bridge between New England and Europe was in existence before the middle of the Pliocene period; (9) That certain species of animals, whose relationship to one another has been questioned, are in reality near relatives; (10) That the Isthmus of Panama is post-Miocene in origin; (11) That the Sonoran Desert in southwestern North America has been in existence at least since the middle Pliocene; (12) That the former connection of southern Florida with the Greater Antilles was interrupted before the land routes from Nicaraugua and Yucatan to Jamaica and Cuba had been used by *Zelleriella,* that is, before the later Pliocene; (13) That the union of Central America and South America to eastern Asia by way of an eastern Pacific land belt was a reality; (14) That the Olympic Mountains of Washington and the Siskyou Mountains of the northernmost California coast were a part of this eastern Pacific land belt; (15) That the family *Bufonidae* arose in Equatoria as early as the Triassic; (16) That the genus *Bufo* did not enter Africa until late Tertiary times ;(17) That *Bufo* did not come to South America from Africa; (18) That *Bufo* did not pass to South America from North America by any route; (19) That if *Bufo* entered South America from Asia, it did so before the genus *Opalina* was evolved; (20) That it is more probable that *Bufo* originated in northern South America and from there colonized Euro-Asia, entering Euro-Asia by way of the eastern Pacific land belt, and entering Africa from Asia by way of the Nile valley; (21) That *Bufo* entered North America either from South America by way of the eastern Pacific land belt, or from Siberia by way of Alaska, or by both routes; (22) That the Brazilian highlands in early Tertiary times had extensive forests suitable for the development of the Tree Frogs; and twice as many other points of about

equal interest. Much of this evidence is in line with evidence from other sources and is merely confirmatory. On the other hand, many of the indications are new. Some of the evidence seems conclusive; some of it is inconclusive and must be correlated with other data before it can be given its proper weight. But this mere catalog of, say, a third of the questions which are approached thru the host-parasite study of merely the *Anura* and their Opalinid parasites is sufficient to show the method a fruitful one. I will venture a prophecy, namely, that as time goes on this method will be very extensively used and that it will be a great aid, itself often completely decisive in determining the proper answer to many questions of former land connections, former climatic conditions, former routes of dispersal, the date of first appearance of different species of animals and plants and the place of their origin, and so on and so on. The method is a jolly one to play with. Let me commend it to any of you who enjoy puzzles and their solution.

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